NATIONAL PETROLEUM NEWS

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Rate Hearings End at Dallas, Chicago Next

DALLAS, Tex., Oct. 30.—If there isn't some relief through the avenue of transportation there won't be any independent refiners left in five years, Hoyt Ogram, Chicago, sales executive of Kanotex Refg. Co., testified at the Interstate Commerce Commission hearing, which closed here Oct. 26, Petroleum Rail Shippers Ass'n. complaint against "unreasonable and discriminatory" transportation charges.

Kanotex, a rail-shipping refiner, has already suffered an approximate 50 per cent loss in market for its products—Kanotex shipments having dropped from 13,365 tank cars in 1929 to 7154 in 1938, the Kanotex executive said. This loss was predominately in interstate shipments nature and was suffered despite fact his company had kept abreast of both refining

(*Continued on page* 14)

Oil Trucking Rises 22% Above September, 1938

WASHINGTON, Oct. 30.—American Trucking Associations, Inc., reports that movement of petroleum and products by truck in September was 22.4 per cent higher than in September 1938. Because of the seasonal decline, however, September shipments were 6.2 per cent under August.

Oil Hearings Start Nov. 6

Read how Interior Department is "plugging" for Cole Oil Bill through radio broadcasts over national hookup. Page 16.

N. P. N. News Bureau

WASHINGTON, Oct. 30.—The Cole Oil subcommittee will begin hearings in Washington next Monday (Nov. 6) on the new federal oil control bill.

Just last week Sen. O'Mahoney (Wyo.) declared that his Temporary National Economic Committee had completed a

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5 Out of 12 Majors Profit in Marketing

N. P. N. News Bureau

WASHINGTON, Oct. 30. — Profitable marketing operations in 1938 were reported by five out of 12 major oil companies giving a breakdown of their earnings by departments to the Temporary National Economic (Monopoly) Committee.

Only three of the 12 reported profits in their refining and manufacturing operations, according to analysis of TNEC questionnaire returns by Christopher Del Sesto, justice department accountant.

Two companies, Standard Oil Co. (Indiana) and Skelly Oil Co., reported profits in all four branches—production, transportation, refining and manufacturing, and marketing. All twelve companies reported profits in production, and all but one in transportation.

In the accompanying chart are breakdown figures on investment and profit or loss by departments for each company in 1938 as compiled from statements filed with TNEC.

Presenting the statements to the TNEC, Mr. Del Sesto said that Standard of California, Mid-Continent Petroleum Corp., and Atlantic Refining Co. had not filed the requested analysis of their income by departments. Among companies which reported that the requested data could not be furnished were the Standard of New Jersey, Sun Oil Co., The Texas Co., Tide Water Associated Oil Co., Shell Union Oil Co., and Socony-Vacuum Oil Co.

Companies Qualify Figures

The justice department accountant pointed out that several of the 12 companies reporting a breakdown of their earnings had qualified their figures, some saying that the breakdown was compiled solely for statistical purposes or because TNEC had requested it, that the figures included arbitrary prices for transfer purposes and in no sense indicated what would be the case if each department were considered separately.

However, the accountant declared in his TNEC statement that, even with the qualifications, the figures indicated the trend of earnings.

Summing up, Mr. Del Sesto said:

"From a review of the replies furnished to the Committee, it is apparent that the transportation branch of the industry, in terms of rate of return on assets used, is the most profitable of the four branches. On the same basis the marketing branch is the least profitable.

"The data submitted seems to support, in part at least, the

Credit Card Costs Average 85/100 Of Cent Per Gallon

N. P. N. News Bureau

CHICAGO, Oct. 30.—The total cost of handling a credit card account, including bad debt loss, averages 85/100 of 1 cent per gallon of gasoline charged according to H. E. Butcher, Chicago, Cities Service Oil Co., reporting here last week at the annual conference of the petroleum refiners division of the National Ass'n. of Credit Men.

The figure was compiled from a credit card survey conducted by Mr. Butcher, among 26 oil companies representing all sections of the country, of 1938 and 1939 data.

Average loss on credit card accounts was 79/100 of 1 per cent the survey showed. The company reporting the lowest loss had 1/10 of 1 per cent in bad debts, the highest reporting had 2.45 per cent. (U. S. government figures for 1937 showed a loss of 36/100 of 1 per cent for all classes of business.)

The survey showed the majority of oil companies are issuing credit cards quarterly. Of all the applications received 28 per cent were rejected, and 58 per cent of the applications accepted and credit cards issued became active accounts. Of all the applications, those received and those rejected, 42 per cent became buyers.

The average monthly purchase on retail service station accounts, the survey showed, was $11.81. The break down of purchases on credit cards was: 57 per cent of the accounts buying less than $10 per month (30 per cent bought less than $5 per month); 25 per cent buying from $10 to $20 per month; and 18 per cent buying more than $20 per month.

Butcher Elected Chairman

Mr. Butcher, a vice chairman last year, was elected chairman of the oil credit men. Vice chairmen elected were: H. L. Hamp-

(*Continued on page* 22)

West Virginia Group Elects Officers

Officers of the West Virginia Petroleum Ass'n., reading from left to right, are J. E. Jones, president; C. L. Voress, vice-president; and Edwin F. Patrick, secretary (see page 20)

Getting the Sales Drive Away with a Rush . . . Page 25

charges made from time to time that in the most competitive branch of the industry—marketing—the industry suffers a loss; while in the one branch of the business in which the major oil companies have a high degree of concentration — transportation —the profits are high. It seems, therefore, that there is some merit to the charge made by non-integrated companies that the transportation branch is used in part by integrated companies to subsidize the other branches of the business, or, at least, that the rates charged in the transportation branch are too high."

Table Shows Investment

(See table below for detailed figures on investment, net income and rate of return by departments for 12 companies reporting to TNEC.)

Heads Oil Committee

Rep. William P. Cole, Jr., of Maryland, whose oil subcommittee starts hearings on oil bill at Washington Nov. 6

Oil Hearings Start Nov. 6

(*Continued from page* 9)

study of the industry such as "had never before been made".

Rep. Cole (Md.) has declared that the bill (H. R. 7372) bearing his name is not his brainchild, but one of the administration (it was drafted in the Interior Department). He has told N.P.N. that the first week's hearings here will be largely taken up by Interior Department representatives.

First witnesses scheduled are the "technical" men of the Interior Department—Bureau of Mines, Geological Survey, Petroleum Conservation Division, etc.—who have, Mr. Cole said, brought the technical phases of his committee's 1934 report up to date.

Next among the government witnesses will be representatives of the National Resources Planning Board (formerly the National Resources Committee, which made the recommendations for federal oil control contained in the "energy report" of last February—NPN, Feb. 22), and these will be followed by representatives of the Army and Navy, who are intent upon government control to save their so-called "reserves".

The "clean-up" witness at these original Washington hearings will be Secretary Ickes.

After the Washington hearings the committee may decide upon former hearings in the oil producing regions, but as yet no definite plans have been made.

Breakdown of Investment and Net Income in 1938 of 12 Major Companies In Production, Transportation, Refining and Marketing

(000 Omitted; Percentage figures rounded; † Indicates loss)

Company and Item	Total Amt.	Total % of Total	Production Amt.	Production % of Total	Transportation Amt.	Transportation % of Total	Refining and Manufacturing Amt.	Refining and Manufacturing % of Total	Marketing Amt.	Marketing % of Total	Foreign Amt.	Foreign % of Total	Investments In Unconsolidated Pet. Affiliates Amt.	Investments In Unconsolidated Pet. Affiliates % of Total	General Investments Amt.	General Investments % of Total	Miscellaneous Amt.	Miscellaneous % of Total
Gulf Oil Corp.																		
Total Assets	$546,870	100%	$121,168	22%	$55,373	10%	$94,568	17%	$128,904	24%	$109,447	20%	$7,008	1%	$11,755	2%	$18,645	4%
Net Income before Interest & dividends	$15,905	100%	$5,866	37%	$12,557	79%	$12,398(†)	78%†	$6,722	42%	$7,751	49%	$72	0%	$2,756	17%	$7,422(†)	46%†
Ratio to Total Assets	3%		5%		23%		13%(†)		5%		7%		1%		23%		40%(†)	
Ohio Standard																		
Total Assets	$70,547	100%	$457	1%	$7,331	10%	$29,701	42%	$29,320	42%			$3,273	5%	$308	0%	$153	0%
Net Income before Interest & Dividends	$2,200		—0—		$600	27%	$600(†)	27%†	$1,800	82%			$400	18%	—0—		—0—	
Ratio to Total Assets	3.12		—0—		8.18		2.02(†)		6.14				12.22		—0—		—0—	
Skelly Oil Co.																		
Total Assets	$62,040	100%	$27,563	44%	$3,172	5%	$13,050	21%	$12,102	20%					$3,962(1)	6%	$2,191	4%
Net Income	$3,100	100%	$1,724	56%	$511	16%	$393	13%	$70	2%					$754	24%	$352(†)	11%(†)
Ratio to Total Assets	5%		6%		16%		3%		1%						19%		16%(†)	
Indiana Standard (6)																		
Total Assets	$724,663(4)	100%	$117,200	16%	$76,852	11%	$124,050	17%	$177,931	25%					$108,807	15%	$137,787	19%
Net Income	$28,467	100%	$8,602	30%	$10,932	38%	$2,482	9%	$2,932	10%					$4,211	15%	$4,281(†)	15% (†)
Ratio to Total Assets	3.93%		7.34%		14.23%		2.00%		1.65%						3.87%		3.11%(†)	
Empire Gas & Fuel Co.																		
Total Assets	$337,109	100%	$157,466	47%	$4,957	1%	$23,964	7%	$41,802	12%			$12,305	4%			$96,612	29%
Net Income	$14,544	100%	$6,160	42%	$5(†)		$470(†)	3%(†)	$1,641(†)	11%(†)			$4,706	32%			$5,793	40%
Ratio to Total Assets	4.3%		3.9%		0.1%(†)		2.0%(†)		3.9%(†)				38.2%				6.0%	
Arkansas Fuel Oil Co.																		
Total Assets	$39,910	100%	$26,270	66%	$1,730	4%	$3,778	10%	$8,124	20%			$118	0%	$2	0%	$115(†)	0%
Net Income	$1,704		$2,504		$514		$396(†)		$925(†)				$6		—0—		$1	
Ratio to Total Assets	4.3%		9.5%		29.7%		10.5%(†)		11.4%(†)				5.7%					
Cities Service Oil Co. (Pa.)																		
Total Assets	$63,193	100%	$588	1%	$12,245	19%	$22,249	35%	$27,888	44%			$78	0%	$1	0%	$142	0%
Net Income	$3,297(†)		$40		$1,529		$713(†)		$4,153(†)				—0—		—0—		—0—	
Ratio of Total Assets	5.2%(†)		6.8%		12.5%		3.2%(†)		14.9%(†)				—0—		—0—		—0—	
Continental Oil Co.																		
Total Assets	$125,100	100%	$57,400(3)	46%	$5,500	4%	$14,500	12%	$38,900	31%			$4,300	3%	$4,500(2)	4%	—0—	
Net Income	$5,200	100%	$4,000(3)	77%	$1,100	21%	$400	8%	$2,500(†)	48%(†)			$400	7%	$1,800(2)	35%	—0—	
Ratio to Total Assets	4.17%		6.97%		20%		2.76%		6.43%(†)				9.3%		40%		—0—	
Phillips Petroleum Co.																		
Total Assets	$226,700	100%	$146,000	64%	$23,200	10%	$20,700	9%	$33,600	15%			$2,600	1%	$600	0%	—0—	
Net Income	$10,200	100%	$4,500	44%	$5,000	49%	$1,400(†)	14%(†)	$1,500	15%			$400	4%	$200	2%	—0—	
Ratio to Total Assets	4.5%		3.08%		21.55%		6.76%(†)		4.46%				15.38%		33.33%		—0—	
Pure Oil Co. (6)																		
Total Assets	$197,333	100%	$63,275	32%	$9,924	5%	$28,710	15%	$39,424	20%			$10,182	5%	$210	0%	$45,608	23%
Net Income	$8,394	100%	$10,913	130%	$2,174	26%	$7,227(†)	86%(†)	$281(†)	3%(†)			$1,593	19%	$6	0%	$1,216	14%
Ratio to Total Assets	4.25%		17.25%		21.91%		25.17%(†)		0.71%(†)				15.65%		2.86%		4.25%	
The Ohio Oil Co.																		
Total Assets	$138,700	100%	$97,200	70%	$14,900	11%	$4,200	3%	$10,900	8%			$700	0%	$10,000	7%	$800	1%
Net Income	$5,600	100%	$3,200	57%	$3,400	61%	$200(†)	4%(†)	$1,000(†)	18%(†)			—0—		$200	4%	—0—	
Ratio to Total Assets	4.04%		3.29%		22.82%		4.76%(†)		9.17%(†)				—0—		2.00%		—0—	
Consolidated Oil Corp.																		
Total Assets	$357,000	100%	$87,000	24%	$46,000	13%	$199,100	56%(5)					$4,000	1%	$20,600	6%	$300	0%
Net Income	$9,900		$4,700		$11,300		$8,100(†)						—0—		$2,000		—0—	
Ratio to Total Assets	3%		5%		25%		4.1%(†)						—0—		10%		—0—	

†Indicates Loss.

Notes: †Indicates loss. "Total Assets" covers assets used or employed including properties, plant and equipment less reserves for depletion, depreciation and amortization; current assets; non-current security investments; investments and advances in affiliates—unconsolidated; intangible assets—net; deferred charges; and other assets. Cash in bank was generally prorated among departments according to fixed assets or other factor. "Net income" is computed upon the net income before interest and dividends in each branch and is compared with the total assets invested in each branch. [1]Includes investment of $1,993,352 in Great Lakes Pipe Line Co. and less than a majority interest in East Texas Refining Co. [2]Includes investment in and dividends received from Great Lakes Pipe Line Co. [3]Includes investment in and proportion of earnings of Kettleman North Dome Assn. [4]Original contains item of $17,968,353 in assets and net income of $3,588,749 under heading "Consolidating Adjustments and Eliminations." [5]Refining, manufacturing and marketing combined; net assets for properties, plant and equipment (after deducting reserves) was $49,700,000 for refining and manufacturing and $50,600,000 for marketing. [6]Statements included consolidating adjustments and eliminations because of intercompany and interdepartmental transactions, as follows: Indiana Standard Total assets, $27,590,933; net income, $287,634; Pure Oil, Total assets, $16,971,000; net income, $2,715,000.

Oil Starts Biggest Winter Change-Over Campaign

TNEC Hearings End After 40 Witnesses

N. P. N. News Bureau

WASHINGTON, Oct. 30. — Out of the welter of suggestions, recommendations, charges, counter-charges, defenses, denials, questioning and inference that marked the 27-day oil industry hearings by the Temporary National Economic Committee, only one official or semi-official conclusion has been voiced—the declaration by Chairman O'Mahoney at the close of the sessions that:

"I think we have made a study of the petroleum industry such as has never been made before."

How much weight the committee has placed, or will place, on the testimony of each of the 40 witnesses which appeared before it is unpredictable, and it will probably be several months, at least, before the recommendations — if any — which it will draw from the two-million words of testimony will be sent to Congress.

While the hearings were not conducted along the line indicated by advance publicity releases of the committee—a "tell your own story" sort of a presentation—the committee gave virtually everyone who appeared his own time to make his charges, defenses or recommendations, as the case may have been. At times the questioning assumed the character of a prosecutor's cross-questioning. Leon Henderson, Securities-Exchange Commission representative on the committee, defended this.

Addressing William S. Farish, president of Standard Oil Co. of New Jersey, last industry witness on the stand, Henderson declared "if I were on your side of the table . . . I would feel that the distillate that comes out of this type of hearing was much to be preferred to the kind that might come from just merely presentation of unquestioned statements."

Sen. O'Mahoney will undoubtedly use portions of the record as fuel for his federal corporate licensing bill—which would require all corporations doing business in interstate commerce to be chartered by the U. S. under restrictions laid down by the federal government. He referred to this measure, and to the need for such regulation several times during the hearings, contending that oil industry represented a big nation-wide industry, operating in many states, whose laws were inadequate to regulate its activities.

Both Sen. King, Utah, and Vice-Chairman Hatton Sumners, Tex., indicated their unwillingness to concede the need for taking regulatory power away from the states.

Anti-Trust Law Changes

Another committee-member suggestion, made by Leon Henderson, was that the present anti-trust laws, in his opinion, were not adequate to cover the forms of competition which the evidence indicated to him were existent in the oil industry. Mr. Henderson said that competition within the oil industry is "non-price" competition, such as "subsidies, differentiation of products by advertised brands, and of tendencies toward stabilization."

The recommendations of the Department of Justice, as presented by Christopher Del Sesto, may be boiled down to (1) establishment of a uniform accounting method within the industry, so that comparable cost figures may be arrived at by the government, and the public, and (2) a study of "loose" state charter laws, which, he said, allow bookkeeping and accounting practices by large corporations which make it difficult for outsiders to ascertain their financial status. Both of these recommendations will add weight to the chairman's plea for a federal chartering statute.

In the marketing end of the business, numerous independents, whose attack was headed by Paul E. Hadlick, secretary of National Oil Marketers' Ass'n., urged the committee to recommend marketing divorcement—separation of the marketing branch of the industry from other branches—and many questions were asked by the committee and its attaches on the charges of the independents that major oil companies deliberately lose money in their marketing operations to curtail independent competition, making up these losses by excessive profits in other branches.

Some of the adherents to this charge, however, believed that statutory requirement that the

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integrated oil companies file separate profit and loss statements for the various branches of the industry in their statements with Securities-Exchange Commission, and file separate income tax returns for the four branches, would eliminate the practices complained of.

FTC Wants Another Probe

Another recommendation in the marketing field was that of the Federal Trade Commission that it be empowered—and financed—to make another investigation into petroleum marketing.

From complaints in FTC's files, James A. Horton, chief examiner, pointed out to the committee a set of "perhaps illegal" practices in the marketing of petroleum products which would come under the scrutiny of the proposed investigation.

These included "unjustified price differentials and discriminations . . . use of tying and exclusive dealing contracts . . . intimidation, coercion and other oppressive tactics . . . misbranding, false and misleading advertising . . . leasing, selling and loaning of equipment . . . discriminatory contracts with tire and motor accessories manufacturers," etc.

Later on in the hearing, Mr. Farish recommended to the committee, in this connection, that the Robinson-Patman Act and similar regulatory statutes be clarified so that a company would know whether it was violating the law or not.

Members Indicate Interest In Purposes of Proration

Committee members indicated its interest in conservation and proration statutes of the states, and in the charges that they were mere price-fixing devices, by their numerous questions on the subject. The integrated company witnesses were warm in their approval of conservation and proration under state laws, although admitting in some cases that state regulatory bodies may have gone beyond conservation into price consideration in establishing allowables.

Strongest advocate of the state proration system was Col. E. O. Thompson, member of the Texas Railroad Commission, who told of the scientific methods being used to hold production to the "optimum" rate, and of new developments being used to discover and conserve oil reserves.

In this connection, a "panel" of economists and technicians was presented before the committee at the instance of R. E. McConnell, Commerce Department economic adviser. General tenor of their discussions was to defend proration, and by inference, advocate federal control. The witnesses included Ralph J. Watkins, university of Pittsburgh professor who supervised the National Resources Committee's "energy report" last January; Glenn E. McLaughlin, Hunter College, N. Y., economics professor, who aided with the report; R. A. Cattell, chief petroleum engineer of the Mines Bureau, and Herman Stabler, head of the Geological Survey's conservation branch.

Following the panel discussion, Dr. A. G. White, Mines Bureau's chief petroleum economist, was called to discuss his bureau's monthly forecasts of demand. (These had been attacked earlier by marketer witnesses as a contribution by the federal government to the state's price-stabilizing conservation laws.) Dr. White denied that the forecasts were prepared for any other purpose than to aid in the conservation of a natural resource.

Although the hearings started out with a definite tone of "national defense" running through them, this died away as they progressed and as the "war talk" in Washington quieted down.

One of the early recommendations—not definite but inferential—was in the testimony of Dr. John W. Ise, Kansas University economist who was brought in by the Justice Department to present its case. Dr. Ise declared the oil industry ". . . carries some of the earmarks of a public utility."

J. J. O'Connell, Treasury Department member of TNEC (a member of the department's legal staff, asserted that he regarded the depletion allowance now granted oil and mining companies to be in the nature of a "subsidy." He indicated the belief that as new methods are developed for determining more accurately the amount of oil underlying a given property, the depletion allowance should be revised to prevent the owner's continued deduction of the allowance after he had his capital back.

Attacks were made by several of the witnesses on rail rates, and charges were hurled that the major oil companies dominate the railroads to the extent of setting the rates not only for themselves but their independent competitors. These, too, the committee exhibited interest in, as indicated by questioning.

One charge, made by Eugene L. Orvis, Jersey City traffic attorney, was that the railroads in the southeast had proposed a "deal" with major oil companies in that area whereby the rails would make certain rate adjustments advantageous to the majors if the companies, in turn, would cease to use long-distance transport trucks and discourage their use by purchasers from the majors.

Edwin S. Hall, senior counsel for the New Jersey Standard, and Col. Harry T. Klein, chief counsel for Texaco, told the committee that they had advised their companies against entering into such an agreement, as they felt it might be unlawful, and declared the proposal was never consummated.

Other witnesses attacked pipeline practices, and the committee and its questioners dwelt at some length on pipeline rates, practices and charges. In defense of these, API witnesses pointed out that complainants against these rates already have a remedy at law, through Interstate Commerce Commission, and through state regulatory bodies.

The committee was sufficiently impressed by the charges of two officials of a Kansas City retailers' association that the National Assn. of Petroleum Retailers was a "tool" of the American Petroleum Institute and of the major companies generally to call Wilmer R. Schuh, board chairman of NAPR, before it to explain.

Specifically, Mr. Schuh was called to answer the charge that he threatened the Kansas City association with extinction unless its officials ceased offering to appear before TNEC. The NAPR official, however, denied all charges flatly, declaring his organization was not subsidized by major oil companies, that it was entirely independent, and that he had made none of the assertions charged to him in the Kansas City witnesses' testimony.

Mr. Schuh's appearance marked one of the few times during the long hearings when the FTC "code" of fair trade practices was mentioned. He said that approval of some sort of a set of fair trade practice rules would do more to clear up the marketing picture than any other step that could be taken. At about the same time it was definitely learned that FTC has abandoned consideration of the code submitted by the industry some three years ago, on receipt of a letter from the Justice Department disparaging it.

Balanced against these recommendations for changes and complaints of unfair competition, they will have the defense made by the API witnesses of the existing situation; the figures showing the amount of labor and capital employed in the industry, the good labor relations of the industry, the denials of monopolistic charges, the statements that the public benefits through the efficient distribution system that integration has built up, and the declarations that more oil is being saved for the future through conservations methods now in force.

Farish Testimony Winds Up Four-Week TNEC Hearings

N. P. N. News Bureau

WASHINGTON, Oct. 30. — William S. Farish, president of Standard Oil Co. of New Jersey, made two major recommendations to the monopoly committee as he closed his three-day appearance on the stand at the end of the four-and-a-half week oil industry hearings. They suggested:

1. Extension of the Bureau of Mines' factual studies along the lines of helping the states to establish standards of efficiency in production.

2. Clarification of the Robinson-Patman Act so that a company would be able to determine whether it is violating the law, and so that the difference in functions performed by different types of distributors would be recognized as a basis for price differentiation.

These were offered in response to a request by Sen. O'Mahoney that the Jersey company president offer "constructive suggestions" as to what he thought the federal government might do.

With regard to the first, Mr. Farish said that results of the expanded Bureau of Mines studies should be made available to the states (rather than being enacted into federal regulations), and added that "critical studies might even be made of the proration procedures in the various states in the light of

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the standards considered desirable by the Bureau of Mines." He clung, however, to the position that the intent of the studies would be to "help the states to overturn the rule of capture."

Another angle he suggested for the Bureau studies was that of making more equitable the proration procedures among different owners in the same field and among different fields.

"If necessary," he said, "the Bureau of Mines should have additional appropriations to cover the cost of making these studies."

In connection with his R-P law recommendations, Mr. Farish pointed out that the language of the act should be liberalized "with respect to cost as a defense of price discrimination," because, he explained, marketing costs, as well as other costs, for particular commodities are so difficult to determine.

In addition to these two recommendations, President Farish, at the close of his formal appearance, said he wished to withdraw from the role of oil industry witness and address the committee as an ordinary citizen. Here he made his statement urging fewer changes in government policies toward business, and declared the committee had a great opportunity to restore mutual confidence between business and government.

Farish Tells 'Advantages' Of Crude Price Postings

Mr. Farish's windup testimony covered chiefly the points he had outlined in his earlier appearance (NPN, Oct. 25, p. 9). He defended the posted price system of purchasing as having "no necessary connection with either monopoly or competition," and declared that the emphasis placed on the fact there are but a few purchasers in some fields is "entirely unwarranted."

The witness said that price posting "destroys the secrecy of a contract system, brings about a considerable amount of uniformity in the prices posted by all producers for similar crudes (when consideration is given to transportation and other costs of reaching the common market), and gives the same price to both large and small."

Mr. Farish said he thought there should be more flexibility in the price posting system, that is, that purchasers should reduce their postings possibly by a few cents when they find that a small amount of crude is getting to market at below the posted price, instead of waiting until they are forced to make much larger cuts by the fact that a large amount of below-posted-price crude is getting to market. He said the hesitancy to cut the price in the first instance is that all purchasers dislike the "stigma" which producers attach to the one who reduces the posted price, and hence wait until they are virtually forced before cutting.

The posted price system, he said, in general works in accordance with the laws of supply and demand.

There was some discussion of the oil import tax, with J. J. O'Connell, Treasury Department, doing most of the questioning. After Mr. Farish had answered that the price of domestic crude might be lower if the import tax were removed, O'Connell remarked that it seemed "curious" to him that the U. S. should be the largest exporter of crude, and still have an import tariff.

Mr. Farish said that "in theory" this would appear to be anomalous, that it is a "much debated subject" within the industry, and that since his company is engaged in both foreign and domestic production it has remained neutral in the discussions of the "oil tariff."

The Jersey company president defended conservation and proration clinging to his position it was a problem for the states rather than for the federal government.

The witness said he favored the Connally Act, inasmuch as it was an aid to state control, rather than any federal regulation, and Justice Department Attorney Hugh M. Cox asked if he would be in favor of writing into the Connally Law the next time it comes up for renewal a prohibition against the federal government aiding the states where it was shown their conservation statutes were directly aimed at fixing prices.

There was also some discussion of modification of the anti-trust laws, between Mr. Cox and Mr. Farish. The latter said he believed they were adequate now, and that the fact a company was prosecuted was penalty enough, aside from the money penalty, which Mr. Cox indicated he thought was too low.

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Getting the Sales Drive Away with a Rush . . . . . Page 25

Oil Transportation News

Latest developments in freight rates, legislation, taxes, regulations, and new construction affecting the transportation of petroleum products by truck, barge, tanker, pipeline, and railroad.

236 Rail Lines Sued On Truckers' Charges

N. P. N. News Bureau

WASHINGTON, Oct. 30.—The complaint of American Trucking Assns. Inc., against railroad practices allegedly discriminatory against trucks (N.P.N., Mar. 29, p. 32), has resulted in the filing of a civil anti-trust suit by the Justice Department against the Association of American Railroads and its 236 railroad company members.

Suit was filed in the U. S. district court for the District of Columbia, charging that the association (including most of the important roads of the U. S.) "combined to restrain trade by agreeing not to extend to motor carriers the same co-operation in the carriage of freight and passengers which they customarily extend to each other."

The complaint further alleged that the roads "have jointly refused to establish rates on loaded trucks, trailers and truck bodies, 'all commodity' rates, container and similar rates, and have jointly refused to establish through rates, joint rates and fares, and joint billing arrangements with motor carriers in order to eliminate competition."

The charges made in the justice department's complaint are identical with those made before the House Interstate Commerce Committee last March by Luther M. Walter, co-trustee of the Chicago Great Western Railroad Co.

Explains Why Civil Suit

Explaining the reasons for a civil procedure, the justice department declared that the "agreement which it is alleged contravenes the anti-trust laws in this case consists of resolutions passed by the Ass'n. of American Railroads. The existence of these resolutions were revealed to the department . . . some time ago but due to limitation of personnel it has been impossible for the Department to investigate and take action."

The department alleges that the defendants "have fully cooperated with the department" in the investigation, and adds "if the court ultimately determines that the defendants' agreements contravene the anti-trust laws and cancels them, and these remedies should then prove insufficient, the way will still be open for the institution of criminal proceedings, but it is not proposed to resort to these unless the civil suit should prove inadequate."

Discussing the "results to be anticipated by the present action," the department said:

Anticipated Results Stated

"If the restraint upon trade charged in the complaint is found to exist, this suit should restore to the individual railroads freedom of action to enter into through-transportation arrangements with motor carriers. Beyond this the purpose of the Department does not extend. It is not its function to promulgate a transportation policy for the nation, or to foster any plan for the solution of what is currently spoken of as the 'railroad problem.' Its sole duty in this case is to seek an emancipation of the railroads from the restraints of those agreements if they are found to contravene the Sherman Anti-trust Act.

"While it is impossible, of course, to determine now just what economic results would follow the restoration of freedom to individual railroads to deal with motor carriers, it is not unreasonable to expect that great impetus will be given to the establishment of co-ordinated rail-truck service, and that the practical experimentation in this field will develop more efficient and economical transportation channels, thus facilitating the movement of interstate commerce."

Rail-Shippers' Rate Case Moves to Chicago, Nov. 15

(*Continued from page 9*)

and sales trends, the executive said.

"The point I'm trying to make here is that when we are in position to go out and merchandise without the hazard of competitive fields of transportation where there is a saving made and where there are concessions out of these savings made, we will be able to maintain and to aggressively produce railroad transportation and tonnage." But when other refiners have a freight advantage of approximately 2 cents per gallon and utilize this advantage partially in making concessions to jobbers, he said his company was helpless to meet this competition.

Indiana Jobbers Represented

Other traffic and sales executives representing Mid-Continent rail-shipping refiners painted for the commission a picture of contracting market areas as result of transportation discriminations.

H. A. Hollopeter of Indiana Independent Petroleum Marketers Ass'n testified his group prefers to have the Mid-Continent refining district preserved as a source of supply in addition to major company supply sources. He said that light oil shipments into Indiana by truck during three months of 1939 had topped the same period of 1938 by 22,000,000 gallons, while rails were losing 5,000,000 gallons.

In prefacing his remarks made earlier in the week regarding P.R.S.A.'s 73-page volume of exhibits, H. K. Davis, Tulsa, association statistician said exhibits show "some of the basic ways, principally based upon studies of the Interstate Commerce Commission, which might be useful in a determination of the manner in which illegal practices and discriminations . . . may be minimized."

Suggests 'Progression' Theory

Mr. Davis said that if reduced rail rates, put into effect for short hauls to meet truck and threatened pipeline competition from Superior to Minneapolis and Chicago to Joliet, were progressed from southwestern origins to midwestern consuming points in proportion to the square root of the distance of the haul—the resultant rates would enable rail-shipping Mid-Continent refiners to reach their markets at rail rates below those of 1916 under which rate scale the Mid-Continent refining industry flourished. It is a reasonable assumption these two short-haul rates, voluntarily published by rails to meet threatened and actual competition, Mr. Davis said, were compensatory and that the rails, therefore, are in position to grant long-haul shippers adequate relief from unfavorable discriminations. He cited excerpts from an ICC rate case decision and statistical studies in substantiation of the square root progression theory.

Pipeline Costs Submitted

Compilation of cost of transporting crude by pipeline to various midwestern terminals based on cost figures of Stanolind Pipe Line Co. and submitted by Mr. Davis, indicated a 4.256 cents per hundredweight cost on a 344-mile pipeline haul from Tulsa to Kansas City; a 5.495 cents a hundredweight cost on a 525-mile haul from Tulsa to St. Louis; a 9.686 cents cost on the 783-mile haul from Tulsa to Chicago; and 11.790 cents on the 953-mile haul from Tulsa to Toledo.

Cost of transporting gasoline by pipeline as figured from ICC statistics and interpreted by Davis, showed it cost Great Lakes Pipe Line Co. 6.5 cents a hundredweight from Tulsa to Kansas City, 12.5 cents a hundredweight from Tulsa to Des Moines, 16 cents from Tulsa to Omaha, 18.5 cents from Tulsa to Chicago and 19.5 cents to Minneapolis from Tulsa.

Mr. Davis also submitted a graph on which was charted 1916 rail rates and a composite scale of rates based on ICC transportation cost figures plus 5.75 per cent return on investment from Group 3 origins to representative mid-western destinations. This chart, he explained, shows a great similarity between trend of these two rate scales and, accepting the accuracy of ICC cost figures, there is a decided indication rates upon which Southwestern refiners shipping by rail and the railroads both prospered should prove a compensatory rate to railroads at the present time.

After Davis had been cross-examined by rail and pipeline counsel on Oct. 26, it was decided the hearing, conducted by Commissioner Splawn and Examiner Chester Stiles, would be resumed over to Nov. 15 at Chicago, with jobbers testifying.

Oil Starts Biggest Winter Change-Over Campaign

'Economic Area' Of Oil Trucks To Be Studied

N. P. N. News Bureau

CHICAGO, Oct. 30.—Defining of economic areas for the transportation of petroleum products by motor carrier and by railroads on a national scale was inaugurated here last week during the meeting of the petroleum transporters division at the American Trucking Assns.' Inc., annual convention.

The movement got underway through adoption of a resolution calling for the A.T.A. to ask the Interstate Commerce Commission to institute regional investigations, where such investigations have not been held, on petroleum rates of motor carriers and railroads to determine the economic sphere of each type of carrier.

Railroad strategy in rail-truck oil hearings has been to build up a case on the basis of service rendered, working up to the theory that transporters render a superior service to the shipper hence transport rates should be higher than rail rates, it was pointed out. Transporters, under the resolution, would approach rates from the viewpoint of cost of service for the carrier.

Transporters To Meet

After discussing railroad competition the meeting turned to means of improving the organization. A resolution was adopted for the petroleum transporters division of ATA to hold a national meeting somewhere in the central west before May 1st. The meeting is likely to be held in Kansas City during the late winter. Kansas City led in the discussion for a meeting place, as being accessible to transporters on the East and West Coasts and also to the thousands of operators in Texas, Oklahoma, Kansas, Nebraska, and South Dakota.

Wilcox Elected

In the election of officers Morris L. Wilcox, of Downingtown, Pa., vice-president of the Leaman Transportation Co., was named chairman, succeeding A. T. Smith, Sr., of San Jose, Calif., president of Pacific Truck Service, Inc.

Jack B. O'Harra, of San Jose, vice-president of Pacific Truck Service, was elected vice-chairman. C. W. Kelley, of Hutchinson, Kansas, Kelley Transport Co., was elected treasurer. C. Austin Sutherland, of Lincoln, Neb., C. M. Sutherland & Sons, was re-elected secretary.

Mr. Wilcox as chairman of the petroleum transporters division automatically becomes a divisional vice-president of ATA.

Heads Oil Truckers

Morris L. Wilcox

Oil Truckers Win Safety Awards at ATA

Nine petroleum transporters were winners in the fifth national truck safety contest for the year ended July 31st. The transporters, and classification, are:

Harry E. Grimes, Arkansas City, Kansas, winner, one-three units long distance.

Sprague Oil Service, McPherson, Kansas, winner; R. E. Ensminger & Sons, Holyoke, Colo.; Frank C. Klein & Co., Denver; and Leonard Tank Lines, Merced, Calif., awards of merit, fourten units long distance.

Kaw Transport Co., Kansas City; Kelley Transport Co., Hutchinson, Kansas; and the Willett Co., Chicago, awards of merit, 11-25 units long distance.

Decatur Cartage Co., Chicago, honorable mention, 51-100 units long distance.

War Risk Rate Raised

N. P. N. News Bureau

NEW YORK, Oct. 30.—New advisory schedule of war risk insurance rates by American Institute of Marine Underwriters raises rates from 2.5 to 3.5 per cent on American-flag vessels from the Americas to United Kingdom and France excluding Mediterranean and Continent of Europe (Cape Finisterre to Holland inclusive and Norway not south of Bergen by Northern route); neutral-flag boats to Continent of Europe, not calling at belligerent ports, up 3 to 3.5 per cent.

Other changes were an increase from 2.5 to 3 per cent on African imports and exports by belligerent-flag vessels excluding via Mediterranean; an increase from 1 to 2 per cent on belligerent-flag vessels in Atlantic or Atlantic-Pacific trade between North and South America.

Jobber Asks Intrastate Rate From Iowa Pipeline Terminal

DES MOINES, Oct. 27.—Iowa Commerce Commission has taken under advisement the petition of Krumviede Oil Co., Preston, Ia., seeking reparations from C.M.St.P.&P. Railway on ground that it was charged interstate rail freight rate instead of intrastate rate on shipment of three cars of gasoline from Great Lakes Pipe Line Co.'s terminal near Iowa City. Hearing was held Oct. 20 with Eugene L. Orvis, Jersey City, representing petitioner.

Mr. Orvis contended that (1) owing to unfinished gasoline being shipped en masse through pipeline in movement to which Krumviede was not a party, (2) sale and finishing of gasoline taking place after material had come to rest and interstate movement ended at pipeline terminal and (3) no joint arrangements or tariff link-up between pipeline and railroad, the final rail shipment, entirely within Iowa, was an intrastate movement entirely dissociated from the movement to the pipeline terminal.

He also contended that if the interstate continuity of the movement was predicated on privilege, of finishing (blending and coloring) in transit, such was not authorized by pipeline tariff filed with Interstate Commerce Commission at Washington.

Rails Cite Jobber's Invoice

Respondent rail's attorney relied on jobber's invoice settlement with major supplier of gasoline which was on basis of all-rail freight rate from Group 3 to justify theory of interstate movement to ultimate destination.

A. H. Krumviede testified he ordered tank cars through supplier's regional office and received same from storage supply at Des Moines.

A. C. Gienapp, Manchester, Ia., appeared on behalf of Iowa Independent Oil Jobbers' Ass'n.

D. C. Truck Rules Outlawed

WASHINGTON, Oct. 31.—Police Court Judge John P. McMahon here ruled that the Interstate Commerce Commission's truck safety regulations supersede the District of Columbia's rules covering tank trucks, and quashed a case charging a petroleum transport truck driver with violating the D. C. regulations by carrying gasoline in a compartment of more than 600 gallons capacity.

Rails Meet Nov. 14 On Announced Slash In Midwestern Rate

CHICAGO, Oct. 30.—Missouri Pacific's proposal to cut petroleum rail rates from the Mid-Continent along its lines by approximately 9 cents per hundredweight (0.6 cent per gallon on gasoline) will be discussed at a meeting of the representatives of railroads favoring and opposing the reduction, to be held Nov. 14 before C. E. Johnson, president of the Western Association of Railroad Executives here.

Private Truck Hearing

WASHINGTON — Oral argument before ICC on the "need" for establishing hours-of-service and other safety requirements for operators of private trucks will be held Nov. 28 and 29. It had been set for Nov. 21 and 22.

Michigan Holds Oil Quota

LANSING, Mich., Oct. 30.—The Michigan Advisory Board and J. P. Hoffmaster, supervisor of wells decided at a meeting here last week that present proration allowables remain the same with the exception of two fields, Columbia, in Van Buren county and Old Salem, in Allegan county, where present allowables of 100 barrel daily per ten-acre tract will be removed.

November production in Michigan is estimated at 70,000 barrels which equals current demand. Michigan refineries are now using about 54,000 barrels of the state's production, the remaining 16,000 barrels moving to points outstate.

Getting the Sales Drive Away with a Rush . . . . . Page 25

THE READERS' FORUM—ON—

Government's Relations with THE READER'S Oil Business

Contributions are invited. Please address them to the attention of Warren C. Platt, Editor.

Melodramatic Radio Broadcasts Plug For New Deal's Federal Oil Control Bill

WASHINGTON, Oct. 28.—Again the Interior Department has taken to the radio to further its campaign to bring all natural resources, including Oil, under its control, with Secretary Ickes speaking Oct. 25 before the National Coal Ass'n. at New York.

Even though Secretary Ickes spoke scathingly of "rape of our natural resources", attacked "heedless exploitation" and inferred an oil exhaustion in the U. S. within 12 years, his speech was merely an anti-climax to the dramatized radio narratives on oil in the department's "What Price America" series over the Columbia Broadcasting System's network each Saturday afternoon.

These Interior Department "scare programs" would do credit to Orson Welles and his script about the invasion from Mars. First, they aim at picturing a nation suddenly deprived of all petroleum products, then seek to "hang" this disaster on the oil industry for "waste" dating from Colonel Drake's well down to the present day.

First of these oil broadcasts was on July 15; the second, July 22; and the third, Oct. 7.

By coincidence, perhaps, the first two radio programs were just about the time that President Roosevelt had Secretary Ickes, Chairman Cole of the congressional oil subcommittee, and others, come to the White House (July 20) for a conference on federal oil legislation. A few days later, the President sent Congressman Cole the draft of an oil bill, setting up a "Federal Commissioner of Petroleum Conservation" in the Interior Department. Mr. Cole introduced the bill. (See N.P.N. Aug. 2, 1939, for text of bill as introduced by Rep. Cole).

Secretary of the Interior Ickes

"First alarm" on the oil situation was sounded in the July 15th broadcast. The official script opens up with "ominous music", sketches in a sound picture of farmers plowing, miners digging, woodmen chopping, then goes on:

MUSIC: *Dissonant chord and out sharply.*

VOICE: (*Dramatically*) This waste must stop!

2nd VOICE: Waste must give way to conservation.

3rd VOICE: (*Quietly, questioningly*) But what is—CONSERVATION?

VOICE: The Department of the Interior, is your agency of government charged with protecting and safeguarding the majority of your natural resources.

2nd VOICE: Harold L. Ickes, Secretary of that Department, has said—"Conservation is the wise use of those gifts of nature upon which we rely for support, comfort and spiritual solace. Every natural resource must be made to serve mankind while preserving all that is possible for the needs of future generations!"

VOICE: What is our obligation in that Democracy to use our resources wisely? Listen to the story of our past—hear of our triumphs and failures—know how to protect our heritage and the heritage of our children—Listen America!

MUSIC: *Up and under.*

VOICE: Supposing *now*—this very minute—the unbending finger of fate wrote a gigantic message in the sky. . . "NO MORE OIL, AMERICA!" Supposing *now*—this very minute—every petroleum product you have were suddenly denied you! This, then, would be *you*, America!

MUSIC: *Up wildly and fade.*

SOUND: *Suggest utter confusion and hysteria of a population in and under. Automobile horns, in hectic symphony.*

(*The following, rapidly, one after the other.*)

DOCTOR: I'm a doctor. I must get there *at once*. A woman is dying!

ATTENDANT: Sorry, Doc. We haven't a drop of gasoline in the station.

SOUND: *Fire siren.*

FIREMAN: (*Shouting*) It's the school house! And we can't move our fire engines!

TRUCK DRIVER: (*Through filter*) Listen boss, I'm carryin' perishable goods—fruit and vegetables—on this truck. How am I gonna get them there before they spoil?

TICKET AGENT: The Twentieth Century Limited can't leave this station, Madam. You'll have to get to New York by stage coach.

FARMER: (*Surprised*) Well I'll be doggone. I can't use my *tractor*. I *can't* plow my farm!

HUSBAND: (*Ordering wife*) Get the children. We'll leave the house and find a restaurant where they cook with a *coal* stove!

DISPATCHER: (*Droning via radio*) All airplanes are grounded. All airplanes are grounded.

BOSS: You men needn't report to work tomorrow. This plant's shutting down. Can't run our machines without oil.

SOUND: *Telegraph key. In and under.*

TELEGRAPHER: S O S. S O S. Steamer America calling. Stopped in mid ocean. One thousand aboard. Send help at once.

MAN: Get some candles, Martha, or we won't have *light* . . . .

ADMIRAL: (*Dictating*) To the Navy Department . . . . Fleet unable to leave port for Pacific coast as ordered. (*Fade*) Guns useless without oil. Awaiting further word on . . . . . .

Crowd up and fade.

VOICE: Preposterous . . . ridiculous . . . bunkum . . . rot?—NO, America. Silly, imaginative, extravagant?—No, *indeed*, America. Our *entire modern civilization depends on oil!* It is absolutely irreplaceable. Dissipate this one natural resource of ours, and *that* danger is *our* danger. It would creep upon us slowly, however, softly, so we would not notice at first. (*Suddenly*) America the seeds for such a calamity *already* have been sown . . . are continuing to be sown *now!*

With that horrendous sound picture, the Interior Department starts its story of Oil—"a story of waste." After leading up to Col. E. L. Drake bringing in the first well in 1859, the script continues:

VOICE: Yes, the Yankee struck oil. With the drill at 69½ feet—suddenly, unexpectedly, there it was. It is a day that Titusville will never forget. Everyone in town drops what he is doing and rushes out . . . to find "Uncle Billy" calmly, unexcitedly filling a tub, tin cans, barrels, anything that he could lay his hands on, with that dark green liquid that was to put a nation on wheels . . . usher in a totally *new* civilization.

MUSIC: *Up and down.*

VOICE: But our story is a story of waste. And it begins right there—in Titusville. Picture if you can a town overrun . . . hundreds, thousands coming from far and near, grabbing land, seeking ways to drill, striking oil . . . *oil!*

SOUND: *Symphony of drills, in and under.*

ASSISTANT: (*Shouting*) Jenkins brought in a new well! Jenkins!

BOSS: (*To Assistant*) Get the land *next* to Jenkins! Drill a new well as close to his as you can! We'll draw from that *same* pool for *ourselves!* (*Fade*) Hurry!

A SLIGHT PAUSE

ASSISTANT: Jenkins is drilling another well to offset ours!

BOSS: Then *we'll* drill another well to offset the new one! Hurry . . . First man down gets the most oil!

MUSIC: *In and down excitingly.*

VOICE: On and on . . . offset well to match offset well . . . 5, 10, 15 wells where *one* would do. Neighboring property owners drawing oil from the same pool—hurriedly, clumsily—no thought of waste.

2nd VOICE: (*Explaining*) It's like straws in a chocolate soda. *You* draw on *yours* . . . *I* draw on *mine*. The fastest gets the most.

VOICE: (*Emphasizing*) Only, *you two* get *all* the chocolate soda. With an oil well you just get part of the oil. Thousands upon thousands upon thousands of barrels are left in the earth, never to be brought to the surface.

2nd VOICE: Gas is blown off into the air . . . gone forever!

OILMAN: (*Coming on*) Who wants gas? I'm interested in *oil* not gas!

3rd VOICE: (*Quietly*) Don't you realize that it's the pressure of gas that forces up the oil. Waste that gas and you lose oil. (*Warning*) Soon there won't be any more oil coming out of your well.

OILMAN: There are *other* wells to dig, aren't there? Tell it to John Paul Jones!

VOICE: Gas, that could have been used for lighting, heating, cooking—gone with the wind! Transportation, too, is a problem that breeds waste . . .

Next in tensely dramatic fashion the radio narrative pictures teamsters getting stuck in the mud and dumping their load of oil on the ground, and barges breaking open in flood waters.

Much stress was laid on the "waste" of gasoline, a product for which there was no known use at the time (the early 1860's). For example:

No Editorial This Week

The writer's editorial is eliminated this week and the space devoted to a presentation of the story of a nation-wide broadcasting drive by the New Deal for enactment of the Roosevelt-Ickes-Cole oil control bill.

In an editorial printed August 2nd, on the introduction of this control bill in congress the writer predicted the probability of a national appeal by the New Deal that probably would have none too much regard for the facts, nor a fair presentation of the whole story of oil conservation.

We submit the following story of the broadcasts as, unfortunately, only too fully substantiating that prediction.—W.C.P.

Oil Starts Biggest Winter Change-Over Campaign

3rd OILMAN: (*Angrily*) That darn gasoline . . . more trouble than it's worth!

WORKER: What'll we do with it?

3rd OILMAN: (*Impatiently*) Throw it away . . . Do anything, but *get rid of it!*

WORKER: (*Suddenly*) I know. Tomorrow's the Fourth of July.

2nd OILMAN: (*Waiting*) Yeah?

WORKER: Why not dump that gasoline in the river . . . get all of the other oilmen to do the same. Most of 'em are doing it anyway.

OILMAN: (*Interested*) Yeah?

WORKER: Then we'll put a match to it and let it burn.—What a sight!

OILMAN: (*Laughing loudly*) Sure . . . Sure, that's fine! At least that gasoline will give us a laugh. Go ahead! It'll be patriotic! (*Laughs fading*)

MUSIC: *Up and Down.*

VOICE: Gasoline — gasoline you'll never see again, America—despised, thrown away as fast as it is found! Millions of gallons you might have filled your car with today will never be available to you because of that waste!

For contrast with this critical view of the oil industry's pioneering efforts 80 years ago in developing an entirely different technology for producing a new mineral, read the Interior Department's script about metal mining in another broadcast in the "What Price America" series. In that broadcast the radio audience was told:

VOICE: Honor the men who ushered you, America, into an age of metals. Their story will never be finished . . . for each day you find a new use for the minerals they searched out and put at your command. Some might censure the waste of your metal resources, owing to careless primitive methods of mining in the early days.

2nd VOICE: But remember, these men were pioneers. They mined the best way they knew, and the best way that circumstances allowed. Upon their shoulders . . . upon their mistakes and errors, as well as their successes . . . you have built a mighty industry. Today, with modern scientific apparatus, your miners are digging out the metals you must have, America, and with infinitely greater care and with infinitely less waste. In this way is conservation attained. In this way are the metals you need conserved for the future as well as the present.

But the Interior Department has no such graceful words for the pioneer oil producers, the radio narrator points out no extenuating circumstances.

Apparently, oil men of the 1860s were supposed to have foreseen a generation ahead to the development of the "horseless" carriage and to have stored away the then-useless gasoline. Or, again, perhaps the Interior Department would have had the pioneer producer hold off drilling an oil well until pipelines had been laid to transport the gas to the big cities (then using kerosine mostly), just in case the well should turn out to be a "gasser" instead of oil.

Moreover, there is a tendency throughout the Interior Department script to put words into the mouths of oil men to bear out the narrator's charge of "greed", words that bespeak a "public-be-damned" attitude calculated to arouse antagonism among the radio audience. And there is little or no effort to indicate that such oil men were the exception, rather than the rule.

Continuing the script, the narrator states:

> "Now let us skip through the years a little more rapidly . . . for each, adding another black mark against the word 'waste', and another 'zero' for 'conservation'."

Rapidly, the narrative covers the development of the automobile and the airplane, the conversion of vessels from coal to oil burners, and the discovery of Spindletop and Glennpool oil fields in Texas and Oklahoma, respectively.

VOICE: Apparently *everywhere*—*oil*. How much more might be produced and marketed at a reasonable price if scientific methods are used can only be estimated. Waste gnaws not only underground, but above ground, due to earthen storage. 25c a barrel forces operators in other fields to produce at a loss! But owners of the new gusher wells are deaf to all reason. Get it while the getting is good—every man for himself!

Near the close of the broadcast there is brief reference to the states having oil conservation laws and to the fact that Texas, through a law passed in 1935, has reduced the gas waste in the Panhandle 90 per cent, and that a similar law in 1936 in Louisiana had done much to eliminate "waste" in Rodessa field. But the radio listener would be pardoned if he had gotten the impression that this "tremendous waste" was still going on, although he may have wondered why the figures cited to show "waste" were all three to five years old.

It was pointed out that Illinois had no state conservation law, with the added remark that "closer co-operation of federal and state responsibilities is needed."

'Ominous Music' Starts Off Second of Oil Broadcasts

The second dramatized broadcast on oil, July 22, 1939, started with the same "ominous" music as the first, with the same ringing challenge, "This waste must stop!" It reiterates the necessity of oil in our national life. It was predicated on Secretary Ickes' speech at the American Petroleum Institute convention in Dallas, Tex., Nov. 14, 1934.

Against the background of quotations from Ickes' A.P.I. speech, the radio drama unfurls the discovery of the East Texas field in 1930, the overproduction and futile efforts to control it which followed—martial law in Texas and Oklahoma, injunctions against the Texas Railroad Commission's first efforts at proration. (And again from the words put into oil producers' mouths the radio listener might well get the impression that nearly every producer was a "hot" oiler). Then a Texas commissioner is quoted as saying:

"Sorry . . . we can't help you oil men. Our laws are inadequate and our force too small. They're having the same trouble in other fields in other states. Maybe you oil men better get together and see the federal government . . . maybe it can help you . . ."

Then, there is a cut-back to Ickes' 1934 speech, saying "So . . . . something over a year ago, in September, 1933, the government, with the more or less willing acquiescence of the oil industry set up the Petroleum Code under the NRA."

(That is damning the oil industry with faint praise and glossing over the fact that oil men, big and little, were among the very first to organize and draft their NRA code and *demand* that the government promptly approve it.)

The radio script then goes on with federal agents being run off producers' properties as they seek to check up on "hot" oil, gun battles with truck drivers and ingenious devices—like valves concealed in bathrooms to shut off the wells—of the "hot" oilers, and lawyers plotting to get around the state proration orders.

"Then, finally," says the script, "in 1933, the Federal Tender Board was established." (Actually, it was in the fall of 1934 that the Federal Tender Board system was set up under Section 9C of the NIRA.)

Quoting an "angry producer," the scrip continues, "Now they've got us! Now they don't have to find the source of 'hot' oil. Now *I've* got to have a federal certificate—tender, they call it—to show that my oil for interstate shipment was *legally* produced . . . that it's *not* 'hot' oil! Now, they've got me!" (Again, the radio listener might well have gotten the impression that this was the typical reaction of *all* producers to the bottling up "hot" oil—instead of being the reaction of the relatively few "hot" oilers.)

Immediately following the remarks of an "angry producer", the radio script cut back to Ickes' speech at Dallas in 1934, as follows:

> "When all is said and done, the oil industry has not had much to complain of with respect to the Oil Administration. From a profitless business as a whole, when the Oil Administration took hold, you have been making fair profits. If each of you will look back over the past year and without prejudice or passion compare present conditions with those of the summer of '33, you will all find definite improvements in the industry . . ."

Use of "1933" (instead of the correct year, 1934) in the script as the date of establishment of the tender board system may have been unintentional, but it nevertheless gave the impression that the tender board had been operating for at least 12 months when Ickes spoke in November, 1934, citing "improvements" over 1933.

The radio script failed to mention that much of the "improvement"—at least among producers—was due to the fact that the major crude buyers in the early fall of 1933 raised the price of crude to $1 and held it "pegged" at that level despite failure of the Interior Department to enforce the "hot" oil provisions of the NRA code.

Ignores 'Missing Paragraph'

Ignored also in the script was the famous "missing paragraph" incident of the NRA oil code. It will be recalled that the provision in the code making it an offense to run "hot" oil was not in the original of the code and amendments signed by President Roosevelt. The fact that the paragraph putting teeth in the code was "missing" was not discovered until the test case reached the U. S. Supreme Court in early fall, 1934.

Oil men familiar with the background of the setting up of the federal tender system will be amused at the irony of the radio script saying it was established in 1933 and the inference in the Ickes quotation that this action by the Interior Department was responsible for the oil industry's "improvement" in 1934 over 1933. They will recall that Section 9C, under which the board was set up, went on the statute books June 16, 1933 but no effective use was made of it until October, 1934, when, after suggestions, followed by demands for

Getting the Sales Drive Away with a Rush . . . . . Page 25

action, from the industry, the tender board system was finally adopted.

The July 22nd radio script told about Section 9C being knocked out by the Supreme Court and its replacement by the Connally Law which is still on the books. One paragraph is given to state conservation laws, pointing out that Illinois has none.

Then there is reiteration of the necessity of oil, a reference to "our oil reserve—17 billion barrels—is definitely limited." (Again, there is no mention of additional new reserves constantly being discovered.)

No mention of federal oil legislation is made, but groundwork is laid for a plea to "write your congressman" in the following paragraph from the script which preceded the final announcement:

"The Department of the Interior, principal guardian of your natural resources, is doing all within its power to see that you get the *most* out of your oil reserve. Let your voice be heard if you are not to suffer in the years to come. Remember, America, oil literally *makes* your modern civilization. Conserve it! Then only can you . . . look to the future, America!"

Latest in the broadcast on oil —Oct. 7—in the Interior Department's series was devoted to bringing home more pointedly to the radio listeners how oil "exhaustion" would hit each of them personally. It is entitled "Thirteen Years."

First, the radio narrator stops a stream-lined train (diesel-engined). There is a screech of brakes and indignant protests from the engineer. The narrator tries to engage the engineer in conversation about the "waste of an irreplaceable natural resource." But the engineer walked off, muttering "I got no time to be chewing fat with a crackpot."

Then, according to the script, the narrator launches into a monologue directed at the radio audience:

NARRATOR: (*Quietly*) He's gone. —But *you* listening—I stopped him for *you*. I didn't expect *he'd* pay much attention to me. But you believe me don't you?

Silence.

(*Begins again terribly worried and sincere*) Look . . . I'm speaking for the Department of the Interior, principal guardian of your natural wealth—it wouldn't let me say anything that wasn't so. (*Sincerely*) I'm telling you that our proven oil reserves—that is, the oil we know is in the ground—the oil we know is there—at the rate we're consuming it now, and with no further discoveries, will last us only about 13 years. Let's say 17 years, if you want to quibble. How old are you? You ladies don't have to answer out loud. Add seventeen to whatever your age is. That's it. *The danger will strike before then!*

Mrs. Murphy Cooks by Oil, 'She Should be Interested'

Next episode in the script is a conversation between the radio narrator and Mrs. Murphy in her kitchen where she is cooking eggs on an oil stove. Here is an excerpt from the script:

"NARRATOR: (*Almost pleading*) Mrs. Murphy—listen. This is something that concerns you. It's as close to you as . . . as your kitchen. The oil reserves of the United States will be used up long before the rest of the world uses up theirs.

MRS. MURPHY: Well, I'll buy it, s'long as we have it.

NARRATOR: And after it's gone?

MRS. MURPHY: That's for the government to worry about, not a poor woman like me.

NARRATOR: But you're the government, Mrs. Murphy—You've a Congress that represents you. You can do something about the waste of oil . . . the waste in production, the waste in treating crude, the waste in storage, the waste in transportation, the waste through fire losses the—

MRS. MURPHY: (*Interrupting*) Mister . . . I've got a family of nine children. I've got eggs to be cooked. If it's dinner you'll be likin' to stay for, I'll be glad to have ye, but I got no time to talk about waste.—"

Then, there is a similar conversation with a filling station attendant, with the narrator emphasizing that the station man will lose bread and butter when the oil supply runs out, inferring that this will be in 13 years.

Next, the radio narrator heckles a "politician" who is described in the script as "speech-making in grand eloquent manner" about national defense emergency and how our natural resources are "available for *any* demand we may choose to make upon them . . . not only now, but in years to come."

The script has the radio narrator telling the "politician" that "as far as oil is concerned, our national defense has questionable support." Again, he declares that "with no new discoveries our oil reserves will be exhausted in 13 years if we don't take steps to conserve our supply."

It winds up, the script shows, with "politician" shouting, "Throw that dirty radical out."

Then the narrator strikes up a conversatioin with a shoe-shine boy (negro dialect, with soft, background music of "Shoeshine Boy"). First there is a small talk about the baseball game and then, to quote from the script:

NARRATOR: (*To self*) polish . . . (*Then, quietly*) — Say, you're interested in oil, aren't you.

SHINE: Ah'm interested in anythin' suh.

NARRATOR: That polish you use has oil products in it.

SHINE: You mean this here polish ah been carryin' round for the last three years?

NARRATOR: Yes, paraffin wax, no doubt . . . some gasoline, maybe.

SHINE: (*Surprised*) Say, ah didn't know that.

NARRATOR: What would you do if there were'nt any more oil to make shoe polish so's you could shine shoes?

SHINE: Reckon ah don't know, suh.

NARRATOR: It's going to happen sooner than we imagine, if we're not careful.

SHINE: (*Worried*) You all mean that, suh?

NARRATOR: Sure as fate.

SHINE: Ain't nothin's sure'n fate, suh—But why's that, suh? Ah wants to know.

NARRATOR: Waste, due to ignorance and greed—that's why. Seems funny that the oil resources exploited in Illinois, Louisiana, California, Texas, Oklahoma have anything to do with you.

SHINE: Yeah.—(*Aroused*) But tell me, suh, What's wrong? Don't they know guys like us can't shine shoes less they give us what it takes to make shoes polish?

NARRATOR: They know. They don't seem to care.

SHINE: (*Angry*) Ah care.

NARRATOR: (*Hardly able to credit his ears*) You care? You honestly care?

SHINE: Ah sure do. That touches mah business!

NARRATOR: Well, at long last! Someone who actually seems to care. (*Gratefully*) Thank you, my friend . . .

SHINE: You're welcome, boss, But don't anybody else know about this?

NARRATOR: I've told lots of people.

SHINE: Ain't they worried?

NARRATOR: Evidently not, but they should be. All of us would be, if we pulled our heads out of the sand and looked to the future for a bit . . . looked at the facts today.

SHINE: Next shoe, boss.—And what d'ya mean facts?

NARRATOR: Overproduction — inefficient methods . . . out of date equipment. But that doesn't mean anything to you, does it?

SHINE: Nossuh, but it sounds bad. I got that to say for it, it sounds bad.

NARRATOR: They waste gas . . . and when they waste gas, the energy that forces up the oil, they waste oil.

SHINE: That don't make sense.

NARRATOR: Texas lost 300 million barrels of oil, that way.

SHINE: Lawsy!

NARRATOR: So much less shoe polish for you.

SHINE: (*Aroused*) Hey . . . I'm a citizen, suh. Ah'll go to the government Uncle Sam will do somethin' about this!

NARRATOR: If he doesn't . . . so much as oil and gas is wasted, so much is the life of what we have of it decreased. That means—prices will go up . . .

SHINE: You mean I'll have to pay more for my shoe polish?

NARRATOR: I suppose so. And more for gasoline, and Mrs. Murphy for cooking fuel. And when our supply starts dwindling, men will lose jobs in oil fields and plants . . . and a hundred million people will lose a hundred million economical conveniences, and before long our whole civilization will be stymied.

SHINE: (*Aroused*) Boss, can't we do somethin'?

NARRATOR: Sure—

SHINE: You tell me what I can do to help, suh, and ah'll—

VOICE: (*Off calling*) Shine. Hey, Shine!

SHINE: (*Calling out*) Comin' boss.

NARRATOR: You just do what you can. (*Sadly*) There isn't much you can do by yourself. — Thanks anyway, for listening my friend. You've been very kind . . . you, with your life wrapped up in that little can of shoe polish . . . you're the only one who had the sense to lend me his ears.

SHINE: (*Quietly*) Here's your change, boss.

NARRATOR: (*Softly*) Keep it . . . Keep it.

MUSIC: *"Shoe Shine Boy" up and out.*

The narrator runs through a long list of consumers of petroleum products, addressing them as "Dear users of tractor oil" and on down to "Dear seekers of butter, lard, varnish and linseed oil substitutes." Then he puts this message to the radio audience:

"I have taken you on quite a ring - around - the - rosie. I've used up 20 minutes to tell you that our oil reserves won't last forever, but that they'll last longer than 13 years, at our present rate of consumption, if we want them to. I've told you how they've been wasted in the past . . . are being wasted today. I've spoken of ignorance and greed. BUT—have I touched you at all? Maybe I should have told you a cute story about a boy and a girl running out of gasoline —would that have meant more? Maybe I should have rendered our navy useless, or shut virtually every big plant in the country, and thrown millions out of work—maybe I could have frightened you that way.—But I didn't. I stopped a train. I talked to a Mrs. Murphy. I interrupted a political speech, and spoke with a shoe shine boy. My object was simply this—To acquaint you with a national problem . . . *your* problem. My hope was *and is* that you, as a Nation, will do something about this problem."

Then the script has a voice interrupt to ask the narrator what should be done about it.

This is the cue for the narrator to tell the radio audience that the Interior Department is "working on this problem. Only if it's to do a real job of conserving your oil resources for you, it's got to be given the power by Congress." He goes on to say, "One way is to create a body in that Department of Interior to fight the waste of oil for us."

If any state refuses to stop what the federal agency said was "wasteful" practices, then "we the people will institute legal action to *make* you do it. Our oil must be conserved," say lines of an "official" in the radio script.

Barring from interstate commerce oil produced "wastefully" would make the plan a double-barrelled proposition, the radio narrator says, adding, "Proposed legislation to that effect is now before your Con-

Roll of Honor to Show Change-Over "Star" Marketers

gress." (Among other things, the Cole Bill includes two provisions similar to these two outlined in the Interior Department's script.)

The script then concludes with the locomotive engineer, Mrs. Murphy, the filling station attendant and the politician being "converted" to Interior Department's view. Here's an excerpt from the script about the last two:

ATTENDANT: (*Thru filter, thinking*) That business about oil . . . Only 13 years of reserves, and me in the service station business. My kid will be ready for college in 13 years. He's got to have a chance (*suddenly, determined*) I've got it—I'll help! That's what I'm goin' to tell everybody I know. I'm gonna tell 'em the facts like that man told me . . . tell every guy that stops, whether he stops for gasoline, water or free air. I'm gonna tell seven hundred people a week, we gotta conserve our oil not only for ourselves, (*Fading*) but for our kids!

MUSIC: *Up and under.*

POLITICIAN: (*Through filter, thinking*) In all my public life I've never avoided facts and I don't intend to begin now.—National defense. It's a major problem facing this country today. If the waste of our oil threatens our national defense, I'm interested. If this oil conservation problem is so important that oil reserves have been already set up to protect our Navy, then I'm going to see what I can do to protect my constituents—the every day oil-users. What's more, if it's legislation that we need to conserve our oil, I'm going to lend my support to securing such legislation. Conservation . . . here's a question upon which politics could never introude. From now, on, I fight for conservation.

MUSIC: *Up.*

VOICE: I'm an optimistic sort of guy. I got a hunch, they heard.

MUSIC: *Swells and out.*

'Jerusalem (Petroleum) the Golden'

WASHINGTON—"Swells and out," as the radio script says, the Interior Department's oil broadcast ended with the strains of a tune that sounded like that good, old-fashioned hymn, "Jerusalem the Golden," which the New Deal may think is particularly appropriate as picturing the oil industry under federal control. Here are the words to the hymn:

Jerusalem the golden! With milk and honey blest;
Beneath thy contemplation sink heart and voice opprest.
I know not, O I know not, what joys await us there!
What radiancy of glory! What bliss beyond compare!

They stand, those halls of Sion,
All jubilant with song,
And bright with many an angel,
And all the martyr throng.
The Prince is ever in them,
The daylight is serene;
The pastures of the blessed
Are decked in glorious sheen.

There is the throne of David;
And there, from care released,
The shout of them that triumph,
The song of them that feast.
And they, who with their Leader,
Have conquered in the fight,
For ever and for ever
are clad in robes of white.

O sweet and blessed country,
The home of God's elect!
O sweet and blessed country,
That eager hearts expect!
Jesus, in mercy bring us
To that dear land of rest!
Who art, with God the Father,
and Spirit ever blessed.

N.P.N. to Honor Outstanding "Stars" of Winter Change-Over Campaign

● NATIONAL PETROLEUM NEWS will spotlight the outstanding Winter Change-Over "Star" Marketers of 1939 in a Roll of Honor to be published in December.

Oil Marketers and Managers who make a 25% increase in November Winter Change-Over sales over November, 1938, will be listed in the Roll of Honor as SILVER STAR MARKETERS. Those Marketers and Managers increasing sales 50% will be listed as GOLD STAR MARKETERS, and those showing a 100% increase will be listed as DIAMOND STAR MARKETERS. Gold, Silver and Diamond Star Marketers will be featured in the Roll of Honor under the proper star classification.

All Marketers and Managers who make or exceed their last year's sales in Winter Change-Over business are invited to write NATIONAL PETROLEUM NEWS, on their company letterheads as of Nov. 30, stating their rate of increase over 1938.

Percentage reports by Oil Marketers and Managers should not include gasoline sales. Include only sales of Motor Oils, Greases and Special Lubricants, Radiator Compounds, New Tires, Batteries, and other accessories that are sold only because of cold-weather needs of the motorist.

All "Star" Marketers to Receive Certificate of Honor

All "Star" Marketers will receive from NATIONAL PETROLEUM NEWS a Certificate of Honor. The certificate will show the increase reached by the Silver, Gold or Star Marketer—it will be a certificate you will show as a symbol of your Winter Change-Over merchandising ability.

NATIONAL PETROLEUM NEWS invites your cooperation by sending in your name, on your letterhead, as soon after Nov. 30 as possible.

Stelle Hits New Oil Bill

CHICAGO—Lt. Gov. John Stelle of Illinois has termed the newly-drafted Illinois oil bill "a proration bill and not a conservation bill" and announced that he will oppose it. (See N. P. N., Oct. 25, p. 20).

CHICAGO, Oct. 30.—Standard Oil Co. of Indiana directors today declared an extra cash dividend of 25 cents, two years to the day since the last previous extra dividend was approved.

Iowa Convention Date Set

MANCHESTER, Ia.—Iowa Independent Oil Jobbers Assn.'s annual convention will be held March 5, 6, and 7 at the Hotel Fort Des Moines, in Des Moines, according to A. C. Gienapp, secretary.

Bulletin

Joseph Seep Purchasing Agency announces that effective Nov. 1 it will advance its posted prices for Pennsylvania grade crude to new prices of $2.40 for Bradford, $2.05 for Southwest Pennsylvania, and $1.99 for Eureka.

Colorado P.I.C. Holds Annual Convention at Denver

DENVER, Oct. 30.—Effect of state and federal gasoline taxes on the oil industry and consumers was the chief topic of the annual convention of the Colorado Petroleum Industries Committee here Oct. 27. More than 400 members of state and county industries committees attended the one-day meeting.

Lieut. Gov. John F. Vivian spoke on "The State Gasoline Tax", representing Gov. Ralph L. Carr who had been scheduled to speak, but who was out of the state. Robert M. Thomas, Denver, member of the executive committee of the Denver county P.I.C., told "How the Small Business Man Has Suffered Through the Gasoline Tax".

Citing the recent attempt to saddle parking meters on Denver motorists, W. E. Thomas, state chairman of the Colorado P.I.C., speaking after Mayor B. F. Stapleton had welcomed oil men, warned his listeners to be particularly vigilant in guarding against legislation which would place additional burdens on the motoring public and the oil industry.

Jack Furlong, director of the Colorado highway planning survey, outlined the condition of the state's roads. He said that Colorado has 3600 miles of federal aid roads which for the most part are highly improved, but it has 8600 miles of state highways which have received little attention and 62,800 miles of county and local roads on which no major and permanent improvement has been attempted.

Other speakers included Judge Walter E. Brown of Kansas City, chairman of the Kansas P.I.C., who discussed "The Octane Rating of an Oil Man"; Paul G. Clarke of Colorado Springs on "Oil Jobber Relationships"; W. H. Ferguson, Regional Chairman for the Rocky Mountain States, who reviewed P.I.C. committee activities; and Lou G. Wilke, chairman of the convention committee, who conducted a quizz session.

Group picture of the Colorado convention, taken at Denver, Oct. 27, appears below.

500 Attend Arkansas Meeting, M. R. Springer is Re-elected

By N.P.N. Staff Writer

LITTLE ROCK, Ark., Oct. 26.—The Oil Dealers Ass'n. of Arkansas staged here today the fifth of its annual one-day, fast-moving conventions with almost 500 members and guests in attendance.

That the convention program moved right along can be judged from the fact that between 10:30 a.m. and 3:30 p.m. the oil men heard nine speakers introduced, heard those nine speakers deliver addresses, had their pictures taken a couple of times, indulged in a buffet luncheon and transacted official business including the election of officers.

Then they just visited around among themselves until 9 p.m. when the doors were opened at a club that had been leased just for the oil men and their friends who cared to dance and to see a more elaborate floor show than the one presented at the noon luncheon.

The speeches covered a wide range of subjects of interest to oil men. There were talks on highway safety, public relations, gasoline and vehicle taxation, legislation and a sprinkling of Arkansas politics.

That the lengthy program was completed on schedule was due to the combined efforts of Chairman M. R. Springer and Secretary W. F. Scarborough who held the speakers close to their allotted time.

From Hattiesburg, Miss., came R. W. Dunn, general manager of the American Oil Co., oil jobbing company, to tell the Arkansas oil men in his talk on "Oil Men and Their Organization," that the men in the petroleum industry are letting selfishness and envy destroy that industry.

"Envy has got us," Mr. Dunn said, "and the politicians know it. You are living under conditions that will pull you down."

The speaker pointed out the tremendous voting power in the petroleum industry, a power which, if used collectively, is sufficient to "get you oil men the things you want."

In his talk on "Oil, Our Business", Lester Larimer Jr., division manager for National Refining Co., Memphis, Tenn., urged the dealers to "step across the street and look at your station as a customer sees it. Look for the faults that give the station a disorderly appearance, and see whether or not the signs being used are giving proper display in proportion to their worth. . . . The general appearance of our stations determines, to a large extent, whether the driver of a car who is ready to buy gasoline drives into our stations or passes them by for a cleaner looking station. Unclean stations do not help us in having the public see us as we like for them to see us."

'Take a Look at Your Station'

In discussing who sells petroleum products, Mr. Larimer said that "there are approximately 380,000 dealers in gasoline, but only one-third of them, according to statistics, are recognized as genuine service station outlets where the major part of the income is derived from the sale of petroleum and related products. Only one dealer in three, then, is seriously in the oil business. . . .

"It is, then, quite unfortunate that the 27,500,000 automobile owners, who consume an average of 600 gallons of gasoline each per year, together with oils, greases and other related products, see us through the retail outlets where efficiency is probably at the lowest point among all the necessary operations of the business as a whole."

Springer Re-Elected

M. R. Springer, Little Rock, was re-elected president of the Oil Dealers Ass'n. of Arkansas. He is division manager for Lion Oil Refining Co.

Mr. Larimer also stressed the desirability of having proper manpower. "Too often," he said, "we make the mistake of hiring the first man who comes along, all because he is a friend of someone we know and his only qualification is that he is out of work.

"Experience shows that, if we set up a standard, and then look for the man whose qualifications most nearly meet those standards, we will get the best results."

Lieut. Gov. Bob Bailey of Arkansas told the oil men, during his talk on "New Attitudes," that they could rest assured he would do all he could to help get the gasoline tax—6.5 cents a gallon in Arkansas—reduced.

Sees No Relief 'til 1965

State Senator Roy Milum of Harrison, however, said in his talk on "The Gasoline Tax — Present and Future," that under an existing law, enacted in 1934, the gasoline tax cannot be reduced as long as there is any outstanding bond indebtedness, and that it will be along in 1977 before such a situation could develop. There might be a 0.5 cent a gallon reduction along in 1965 or 1967, he said, if the revenue from the gasoline tax reaches more than $10,000,000 annually, that reduction being provided for in the law.

Other speakers were William McComb, managing director of the Arkansas Automobile Club, who spoke on "Highway Safety;" William Johnson, editorial writer whose public relations talk was entitled "Spreading the Old Oil;" Ray Blair, field representative of the National Highway Users Conference, Paris, who discussed motor vehicle taxes and their distribution and State Senator Dick Mason of Camden, whose subject was "Legislative Reminiscences."

Mr. Springer, who is division manager for Lion Oil Refining Co., was re-elected president of the association. L. F. Clark of the Cities Service Oil Co., and J. M. McMurray of the Texas Co. were elected vice presidents, and Mr. Scarborough re-elected secretary.

One of the resolutions adopted reaffirmed the association's ideals and objectives. They include:

1. Continued effort to get the state gasoline tax reduced.
2. Sponsorship of an effort to get constitutional amendment prohibiting the diversion of gasoline and motor vehicle taxes to other than highway use.
3. Elimination of multiple municipal and privilege taxes on service stations and bulk plants.
4. Sponsorship of a movement to get the motor vehicle registration date set for October of each year.
5. Assist federal and state authorities in detection and elimination of gasoline tax evasion.
6. Concerted work toward the elimination of the "unjust" and "unfair" federal taxes on gasoline and lubricating oil.
7. To seek only fair and equitable treatment of automotive transportation and the petroleum industry.

West Virginia Association Fights Taxes, Elects Jones

CHARLESTON, W. Va., Oct. 26.—Gasoline and oil taxes came in for a severe overhauling at the second annual state convention of the West Virginia Petroleum Asssociation, at Charleston, W. Va., Oct. 25. By the evening session, more than 400 oil men had assembled from all over the state.

J. C. King, manager for the Standard Oil Company of N. J. at Charleston, presided at the sessions, and was the retiring president. He was succeeded by J. E. Jones, of the Pure Oil Company at Parkersburg, who had been vice president the past year. The new vice president is C. L. Voress, general manager of the Viking Distributing Company of Charleston. Edwin F. Patrick was continued as secretary.

The speaking program ran all day. It was opened by Mr. King's address, telling of the work which the association has been doing the past year. Mayor Dawson of Charleston, handed the key to his fellow citizens and Edwin Spears, oil marketer of Wheeling, accepted.

W. A. Jackley, Parkersburg, South Penn Oil Co., told of the development of the gasoline tax and its effect upon the public. Grady H. Forgy, of the American Petroleum Industries Committee of Little Rock, Arkansas, spoke on the need for hard-driving organization to protect the public against unfair taxes.

T. H. Taylor, president, Petroleum Industry Exhibition, Inc., the oil industry's exhibit at the New York Fair, told of the manner of organizing and carrying on that exhibit.

At the afternoon session, Warren C. Platt, editor of NATIONAL PETROLEUM NEWS, spoke of the difficulties of the oil industry in combating unfair tax efforts; how the taxes had grown to a billion dollars a year with the end not yet in sight. Fifteen minutes of his speech was broadcast over the local radio station.

Oil Starts Biggest Winter Change-Over Campaign

Chester H. Gray, of Washington, D. C., director of the National Highway Users Conference, said that he felt the public was now turning against high taxes including gasoline taxes. He said that despite all the clamor, he felt certain there would be no superhighways built by the federal government.

J. L. Marsh, of Youngstown, Ohio, secretary of the Ohio Petroleum Industries Committee, in a roundtable discussion, said there was no such thing as a "temporary" tax; that various states have been assessed "temporary" taxes but they continue from year to year without interruption.

Others participating in the roundtable were E. A. Kyhn, Richmond, secretary of the Virginia Petroleum Industries Committee, and Joseph P. Lanigan, Baltimore, secretary of the Maryland Petroleum Industries Committee.

On presentation by Secretary Patrick, the association adopted a program for 1940 and 1941, urging the discontinuance of the present 1-cent temporary emergency tax on gasoline in West Virginia; to urge West Virginia to stick to the pay-as-you-go basis of building highways and not issue bonds; opposing any diversion of gasoline taxes from road-building purposes; to fight for the repeal of all federal taxes on gasoline and oils; and to approve co-operation in the highway safety movement.

Gum Inhibitors Cost Analyzed for W.P.R.A.

By N.P.N. Staff Writer

SHREVEPORT, La., Oct. 27.—One hundred refinery operators met here today and discussed the use of inhibitors for cracked and polymerized gasolines, the treating and blending of refined products in transit, and the technique of combination reforming and polymerization.

The meeting was under the auspices of the manufacturing committee of the Western Petroleum Refiners Ass'n., it being the final in the series of technical meetings scheduled by that committee for this fall.

The discussion of inhibitors for cracked and polymerized gasolines was led by W. W. Scheumann, chief chemist for Cities Service Oil Co., Tulsa.

In his paper, Mr. Scheumann first reviewed the reasons for treating certain refined products and the various methods that have been used with considerable success, and then swung his discussion to the newer and more economical method of treating by addition of a gum-inhibitor or anti-oxidant which does not remove the unsaturated constituents in the gasoline but which protects them against oxidation.

W. W. Scheumann, Tulsa, chief chemist of Cities Oil Co., discussed several ways of inhibiting gasoline manufactured by cracking and polymerization

"Gum inhibitors," Mr. Scheumann explained, "are compounds which protect a gasoline by preferentially reacting with the oxygen dissolved in it, instead of permitting it to oxidize the fuel constituents. . . . "

Used In Various Treatments

Among the various treating methods with which gum inhibitors may be used was one in which a benzine fraction is split into a light and heavy portion in connection with stabilizing operations, acid treating and redistilling the heavy fractions, and sweetening the combined redistilled heavy gasoline and light gasoline. This method is made possible only through use of gum inhibitors and can be carried out at a cost of 2 cents per barrel less than the conventional method of acid treating and redistillation, Scheumann said. Comparative cost figures for the two operations are shown in accompanying table. These are based on actual plant experience.

Mr. Scheumann also stressed the point that sweetening operations on gasolines that are to be treated with inhibitors must be carried out with a suitable degree of control for satisfactory and economical results.

"The most economical inhibitor can only be determined by experiment," he said. "Inhibitor effectiveness varies in different gasolines." Stability of inhibitors was questioned in discussion and it was pointed out that exhaustion of inhibitor occurs during long time storage which can be overcome by using a larger amount of inhibitor.

R. P. Lowe Reads Paper

Treating in transit is the development of a technique that has grown up with cracking, R. P. Lowe of Proportioneers, Inc., Providence, R. I. told the plant men. There still is room for improvement, the speaker added, but the technique eventually will come to the same degree of accurate control that has characterized cracking.

The importance of line mixing in treating in transit was described by Mr. Lowe by means of a series of drawings and photographs.

Mr. Lowe also described an automatic tetraethyl lead blending fluid proportioneer which utilizes the loss in weight of the tank containing the fluid as the "control" in the blending operation.

The plant men were particularly interested in asphalt-naphtha blending and the lube oil blending systems which were described.

As usual, the plant men moved right into the matter of costs in discussing the paper. A lube blending installation would range from $5000 to $20,000, while an asphalt blending installation to handle from 100 to 600 barrels a day would range from $1500 to $2000, were Lowe's estimates.

Asked about how the installations would "pay out," Mr. Lowe said that the most important savings was in the saving of the light fractions of gasoline and no tie-up in tankage, and also the savings in time as well as the smaller amount of tankage necessary.

Dr. Cooke Talks

Dr. M. B. Cooke of the Alco Co., New York, sketched the major cycles in refining technique, and described briefly the characteristics of each. He then described by means of slides and statistical data the new combination reforming and polymerization unit the Alco company recently constructed for the Arkansas Fuel Oil Co. at Shreveport.

There are three units contained within the larger unit, Dr. Cooke said. They are a reforming unit, a polymerization unit and a gas absorption plant. Dr. Cooke caused some surprise at the beginning of his talk, incidentally, when he read a statement from the Alco company that it was withdrawing from the processing field.

After the regular meeting of the plant men, the Key Co. representatives were their hosts at a still tube rolling demonstration at the Arkansas Fuel Oil Co.'s refinery.

Comparative Cost Figures for Finishing Cracked Benzine per Barrel Finished Gasoline

(A) Acid Treatment and Rerunning of Entire Benzine Fraction

1. **Treating**—Chemical treatment of benzine		$0.0095
	Oil loss	.0205
	Lead equivalent to octane loss	.0106
2. **Rerunning**—Oil loss		.0136
	Lead equivalent to octane loss	.0052
3. **Sweetening**—Chemical cost		.0020
Total		$0.0614

(B) Acid Treatment and Rerunning of Heavy Fraction—Using Inhibitor in Final Product

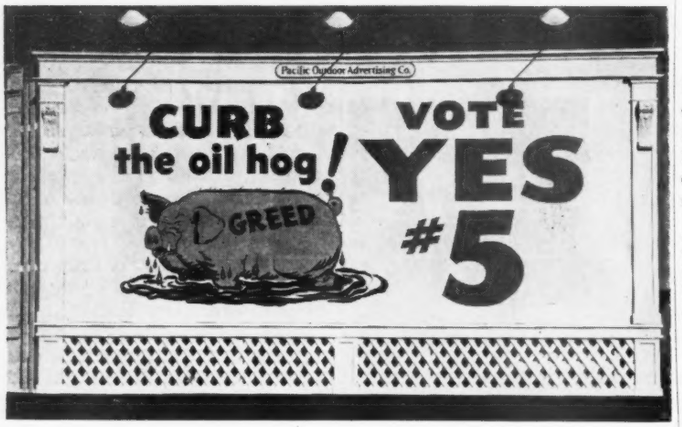
1. **Treating**—Chemical treatment of benzine		$0.0065
	Oil loss	.0120
	Lead equivalent to octane loss	.0062
2. **Rerunning**—Oil loss		.0079
	Lead equivalent to octane loss	.0031
3. **Sweetening**—Chemical cost		.0020
	Inhibitor cost	.0023
Total		$0.0400

NOTE—The following items, the result of actual plant experience, are used as a basis in making the above comparison:

1. In both cases benzine is considered debutanized to a degree compatible with the vapor pressure required on the finished product; therefore no gas yield is obtained on redistillation.
2. No labor costs are included as it is assumed that the labor requirements are the same in both operations.
3. No fuel and utility costs are included, as it is assumed they are identical.
4. The induction period of the finished product is the same in both cases.
5. The raw pressure benzine has a gasoline content of 74.5 per cent and, in the splitting operation, it is split into 30.5 per cent of light pressure gasoline and 69.5 per cent of heavy pressure benzine having a gasoline content of 63.3 per cent.
6. Oil loss due to polymerization and solution during acid treatment is 0.78 per cent and octane number loss is one octane number.
7. Oil loss due to redistillation is 0.52 per cent and octane number loss is 0.5 octane number.
8. Oil loss and octane number loss in sweetening is the same in both cases, and is not considered.

Getting the Sales Drive Away with a Rush . . . . . Page 25

'Hog' or 'Shark', Not Oil Bill Is Issue before Californians



N. P. N. News Bureau

LOS ANGELES, Oct. 30.—Besides being asked to decide on the "Ham and Eggs" pension plan, California voters will go to the polls Nov. 7 to vote in a referendum on the Atkinson Bill for state control of oil production.

Ever since anti-prorationists were able to obtain enough signatures to force a referendum on the bill which had passed the legislature and was signed by Gov. Olson, a political fight has raged which has been unusual even for California. Not the least, was the spectacle of President Roosevelt and Ex-President Hoover in the same bed politically, favoring the bill.

Groups favoring and against the bill have taken to the roadside billboards, calling each other names which rival the colorful language of "Big Bill" Thompson in his heyday in Chicago.

Billboards of anti-prorationists have depicted the measure as a shark on the verge of swallowing little fish labeled the independent branches of the oil industry and the motoring public. Proponents countered with billboards showing a fat pig labeled "Greed" wallowing in oil and urging the people to vote yes on the amendment to "Curb the Oil Hog".

Another confusing aspect of the fight is the latest billboard development, where proponents and opponents give the voters two equally good alternatives: "For Cheap Gasoline, Vote Yes," and to "Stop Higher Prices for Gasoline, Vote No".

To this barrage of confusion also is added the confusion in the ranks of the oil industry. Major companies have generally remained in the background, although it is batted around some of the favorite whispering posts that some are for, while some are "agin" the Atkinson bill, which not only has the unprecedented Roosevelt and Hoover backing, but also has the support of Gov. Olson, the Army and the Navy. The Marines haven't landed as yet. Conceived and nurtured by the CIO, the bill, however, has received the signal for "thumbs down" by the A. F. of L.

Modeled after the New Mexican proration law, the Atkinson bill gives a three-man commission authority to prorate California oil production and to allocate and enforce field and well allowables as a conservation measure. The director of natural resources will be the executive officer and will receive $4000 in addition to his salary of $6000.

Powers delegated to the commission also would permit a large-scale study of the west coast industry with a view to future legislation, possibly even to making the California oil industry a public utility.

Army and Navy Protest

N. P. N. News Bureau

WASHINGTON, Oct. 30.—Federal officials have strongly disapproved erection in California of billboards quoting representatives of the U. S. government as favoring the Atkinson Oil Control Bill.

Acting Secretary of the Navy Edison has endorsed the bill "in general terms," but the Navy Department has registered sharp protests against being drawn into the controversy.

Further, the War Department has definitely denied any connection with the billboard campaign. Other departments likewise have issued denials.

Credit 'Cards' Cost Reported

(*Continued from page 9*)

ton, Chicago, The Texas Co.; H. E. Hartline, San Francisco, Standard Oil Co. of California; and R. R. McCoy, Pittsburgh, Gulf Oil Corp.

Three new members of the board of governors are Frank E. Lee, Los Angeles, Union Oil Co.; L. R. Johnson, Cleveland, Allied Oil Co.; and M. C. Roberts, Tulsa, Tide Water Associated Oil Co. Nine governors re-elected include the chairman, vice-chairmen, and B. W. Atwood, New York, Shell Oil Co., who was chairman last year; H. S. Barnes, Fort Worth, Continental Oil Co.; L. W. Bernhard, New York, Standard Oil Co. of New Jersey; R. E. Neeley, Freedom, Pa., Freedom Oil Works; and R. C. Ward, Toledo, the Sun Oil Co.

R. A. Colliton, St. Louis, National Assn. of Credit Men, was re-elected secretary-treasurer.

What Will Yours Be— 25% or 100% INCREASE?

INDEPENDENT Oil Marketers located in the colder climates are going after the BIGGEST winter conditioning market ever, this fall and winter.

They estimate 25% to 100% INCREASE from Winter CHANGE-OVER sales and services over last year. They tell us that even greater increases in this business are possible, IF the campaigns are vigorously pushed by more marketing companies, and the public's consciousness awakened to the need for conditioning its cars for cold weather driving.

You will find in this November 1st issue articles, suggestions, methods on how to get the *Extra Profits* from Winter CHANGE-OVER sales and services that are yours right now—IF you'll go after them!

For 10c each, put a copy of this November 1st issue in the hands of every station attendant, salesman and division manager in your company.

You'll be surprised at the INCREASED business that will result from a study and application of the information in this issue to your WINTER CHANGE-OVER sales and conditioning market.

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Oil Starts Biggest Winter Change-Over Campaign

Oil Men Trek to Mississippi As Yazoo County Grows 'Hot'

SHREVEPORT, La., Oct. 30.—With three producing wells already completed in the Tinsley area of Yazoo county, Mississippi, oil men are sufficiently convinced that there is something "hot" there that they have begun to move into the area in sizeable numbers.

Lease trading in the general vicinity of the new wells is reported brisk with several major and independent operators active at the present time. Headquarters for the companies are either at Vicksburg or Jackson, each city being about 40 miles from the pool. Yazoo City, the county seat and about eight miles from the wells, also is becoming an "oil center."

The discovery well, drilled by Union Producing Co., subsidiary of the Union Gas Pipe Line Co., came in late in August with a production rate estimated at almost 1000 barrels daily. Production was from the Selma chalk, reached at 4540 feet. A second well was drilled to 3860 feet where it obtained production from the Eutaw formation. The third well began producing from the Selma chalk. Several other tests now are drilling.

How extensive the pool will be is still problematical, but it is generally believed that the present indications are sufficiently good to cause considerable exploration in that state.

Less Than 40 Miles from River

A sizeable pool in the Tinsley area would have several marketing advantages. A pipeline less than 40 miles long would put the crude right on the banks of the Mississippi river, where it could be barged up that river and also up the Ohio river to large plants, and could be moved by barge with considerable ease down the river to southern Louisiana refineries. The distance down the river to the Gulf and then to the Eastern seaboard probably would not be much if any farther than from the Texas coastal fields to the eastern refineries.

Strategic Site for Refinery

One refinery already is reported under construction near the discovery wells and others undoubtedly will follow if the pool shows sufficient promise. These refineries would be advantageously located for truck delivery and a refinery on the Mississippi river would be advantageously located as far as barge transportation is concerned.

State officials have indicated they are in favor of active and intensive development but that they favor conserving that natural resource after the development has proved the oil is there.

Refiners Heartened As British Tankers Dock at Gulf Ports

HOUSTON, Oct. 30.—Reports from London received here by some Gulf Coast refiners hint at "developments" some time later this week which were taken to indicate a "turn for the better" in movement and sale of petroleum products from the Gulf to the United Kingdom.

These same reports, refiners say, indicate that the delay in lifting of oil already purchased and in the placement of new orders still centered on the inability to obtain boats and permits to transfer payment to U. S. banks.

Reports were that the British government has commandeered all tankers and freighters flying that flag and has established fixed rates. Tankers are said to be allotted through the "Petroleum Pool." The government likewise is said to have established strict control over currency. Permits are necessary before transfer can be made.

In the meantime, reports indicate that some sort of a convoy system is operating between the U. S. and Allied ports.

Three British and two other foreign tankers were reported to have docked at the Gulf coast last week, indicating, refiners said, that the shipping situation was clearing. Reports of heavier movement after Nov. 1 persisted in Gulf oil circles.

Oil Allowables Are Held Down

N. P. N. News Bureau

TULSA, Oct. 30.—Allowable production of crude oil in southwestern states whose regulatory bodies already have issued November proration orders will be close to the Bureau of Mines' forecast of market demand for that month.

Texas will have 11 shutdown days in November, which will cut its basic allowable down to a daily average (estimated) production of 1,396,225 barrels. This estimate is 48,000 barrels under the Bureau of Mines' estimate of 1,444,000 barrels daily, but it is generally believed that by the time special allowables and new well completions are fitted into the picture for the month the average will be close to the federal body's figures.

The Oklahoma corporation commission set its allowable right on the Bureau's estimate of 429,000 barrels. This represents an increase of 5000 barrels daily over the October allowable.

Louisiana's conservation commission came very close to the Bureau's figure of 259,000 barrels daily by setting November allowable at 258,994 barrels daily.

The Arkansas commission jumped well above the Bureau of Mines' estimate of 57,000 barrels by setting the allowable at 68,952 barrels. This increase, it was reported, was due to an active demand for crude from one of the new fields in Arkansas.

J. U. Stair, Shell, Dies in California

LOS ANGELES—J. U. Stair, 56, vice-president in charge of Shell Oil Company's activities in Los Angeles, died Oct. 22 at Pasadena, Calif.

Born at Mazomanie, Wis., May 12, 1883, Mr. Stair went to California shortly after the turn of the century and worked as an office boy with the Western Union Oil Co. at Santa Maria, becoming superintendent in 1909.

In 1918 Union of Delaware took over this company and Mr. Stair became vice president of the new company. When Union was absorbed by Shell in 1923 he was appointed superintendent of the Long Beach division. In 1926 he was appointed general field superintendent; in 1928 production manager, and in 1938 he was named vice-president in charge of Los Angeles operations.

Crude Runs Slashed

N. P. N. News Bureau

NEW YORK, Oct. 31.—Crude runs to stills at U. S. refineries were slashed 130,000 barrels on daily average in the week ended Oct. 28, according to a report of refinery operations compiled today by the American Petroleum Institute.

Stocks of finished and unfinished motor fuel at U. S. refineries increased 538,000 barrels last week, the Institute report shows, standing at 72,660,000 barrels on Oct. 28. Stocks at the end of October this year were 3,408,000 barrels greater than for the same period last year.

Refinery stocks of gas oil and distillates and heavy fuels were off about the same amount, the former 273,000 barrels, while the latter dropped 260,000 barrels.

Unsold Gasoline Stocks Increase at Gulf Plants, G.C.R.A. Reports

HOUSTON, Tex., Oct. 30.—Stocks of unsold motor fuel at 10 Gulf coast refiners, running their plants at 65.4 per cent of capacity, reported a net increase of 103,855 barrels the week ended Oct. 21, according to report of Gulf Coast Refiners Ass'n. Stocks in the Houston area increased 115,311 barrels, with Corpus Christi area refiners withdrawing 11,456 barrels.

	Houston District		Corpus Christi District		Louisiana District		Total	
	Oct. 21	Oct. 14	Oct. 21	Oct. 14	Oct. 21	Oct. 14	Oct. 21	Oct. 14
Aviation gas	118,463	113,037	36,267	33,033	None	None	154,730	146,070
Motor fuel	356,038	240,727	455,826	467,282	None	None	811,864	708,009
Naphtha	14,523	10,114	87,230	† 81,950	None	None	101,753	† 92,064
Kerosine	None	57,656	None	None	None	None	None	57,656
Diesel oil	None	None	None	None	None	None	None	None
Gas oil	None	None	10,000	12,536	None	None	10,000	12,536
No. 5 fuel oil	None	None	None	39,150	None	None	None	39,150
Bunker "C" fuel	None	None	21,658	18,929	None	None	21,658	18,929
Crude runs	199,868	220,158	316,913	399,922	60,051	55,505	576,832	675,585

*70,230 bbls. high octane blending naphtha. †64,950 bbls. high blending naphtha.

Getting the Sales Drive Away with a Rush . . . . . Page 25

Latest Oil Industry Statistics

Inventories, Sept. 30, 1939, of Pennsylvania Oils Other than Lubricating Oils

(Compiled by National Pet. Ass'n. from Reports of Oil Region Refiners. Figures in Barrels)

NAPHTHAS AND GASOLINE	
(1) Straight run, unblended and/or unleaded, for sale as motor fuel	15,636
(2) Naphtha and gasoline, for sale for blending or further refining, or held at refinery for further distillation, reforming, blending or leading	183,626
(3) Below 65 octane, not included in (1) or (2) above	9,308
(4) 65 octane and above	295,353
Salable naphthas other than motor fuel material (does not include refinery process naphthas)	35,350
Kerosine	141,622
36/40 gas oil (include furnace oil)	79,738
Fuel oil (not reported above)	20,053
Oils held at cracking plant charging stocks	390,038
None viscous neutral	20,850
Wax distillate	134,485
Crude petrolatum	17,026
Wax (Lbs.)	4,651,998

Crude Oil Production for the U. S.

(American Petroleum Institute figures)

	Week Ended Oct. 28 Barrels	Oct. 21 Barrels	Oct. 14 Barrels
Oklahoma	415,750	428,000	436,300
Kansas	187,200	174,850	164,150
Texas	1,250,900	1,514,600	1,457,150
Louisiana	264,850	262,200	264,200
Arkansas	65,900	65,350	64,850
Mississippi	800	350	...
Illinois	340,400	327,700	331,650
Eastern (Ill. excluded)	103,100	102,950	103,800
Michigan	63,950	62,450	63,100
Wyoming	62,100	65,000	66,600
Montana	17,200	17,250	17,250
Colorado	3,900	3,700	3,700
New Mexico	115,750	115,800	110,350
California	606,700	631,700	630,400
Total U. S.	3,498,500	3,771,900	3,713,800
Crude Imports	105,140	107,000	136,000
Total New Supply	3,603,640	3,878,900	3,849,800

Weekly Changes in U. S. Crude Oil Stocks*

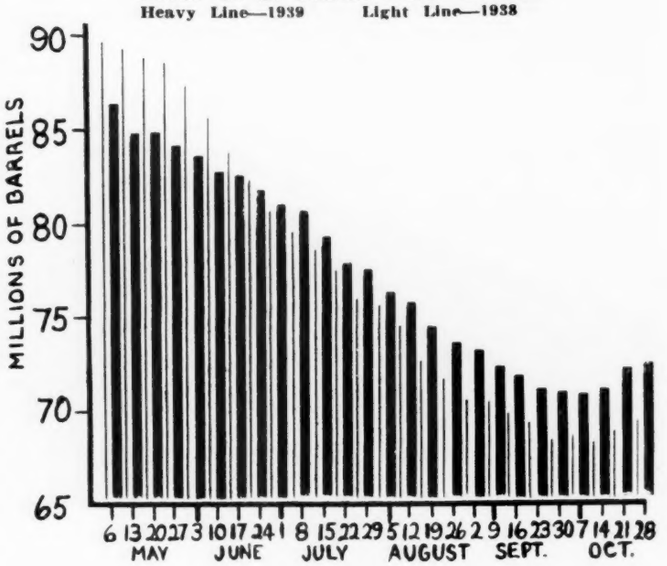
(Thousands of barrels)

Grade or Origin	Oct. 7	Oct. 14	Oct. 21	Chng. from Oct. 14
Pennsylvania grade	5,194	5,122	5,100	— 22
Other Appalachian	1,384	1,355	1,374	+ 19
Lima-Michigan	1,933	1,856	1,823	— 33
Illinois-Indiana	15,672	15,792	15,761	—151
Arkansas	2,694	2,679	2,508	—171
Kansas	5,133	5,198	5,223	+ 25
Louisiana:	10,477	10,391	10,312	— 79
Northern	3,880	3,914	3,919	+ 5
Gulf Coast	6,597	6,477	6,393	— 84
New Mexico	4,543	4,825	4,903	+ 78
Oklahoma	61,552	61,170	60,833	—337
Texas:	65,598	64,832	65,538	+706
East Texas	13,543	13,486	13,813	+327
West Texas	14,401	13,982	14,310	+328
Gulf Coast	16,883	16,381	16,516	+135
Other Texas	20,771	20,983	20,899	— 84
Rocky Mountain	18,008	17,756	17,782	+ 26
California	37,164	36,643	35,774	—869
Foreign	2,212	2,251	2,316	+ 65
Total United States refinable	231,564	229,870	229,127	—743
Heavy in California	14,052	13,994	14,035	+ 41

*As compiled by the U. S. Bureau of Mines.

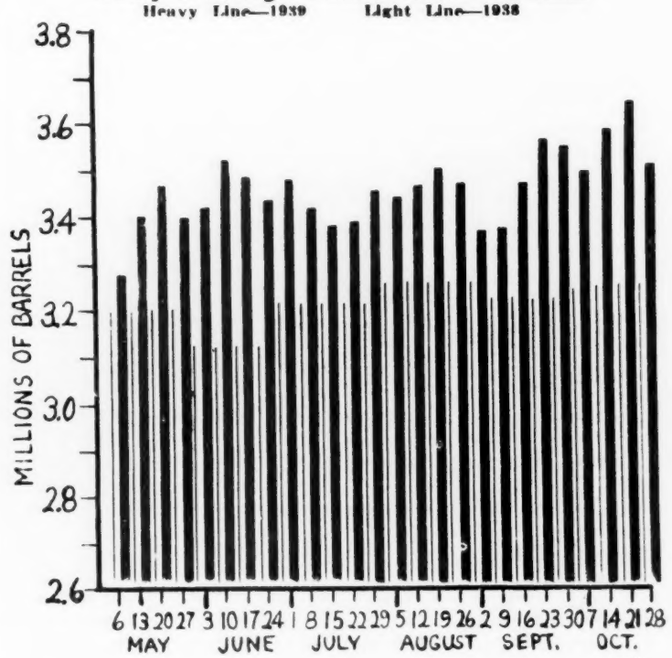
Total U. S. Motor Fuel Stocks

Heavy Line—1939 Light Line—1938



Daily Average Crude Runs to Stills

Heavy Line—1939 Light Line—1938



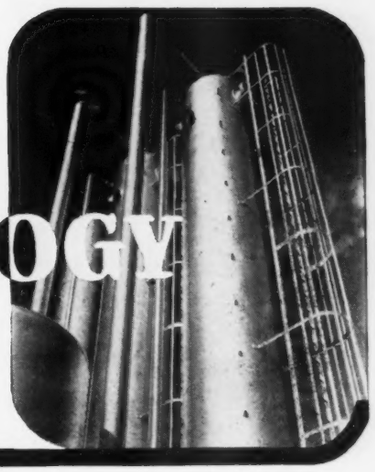
A. P. I. Weekly Refinery Report

(Figures in Thousands of Barrels of 42 Gallons Each)

Districts	Daily Average Crude to Stills Week Ended Oct. 28	Oct. 21	Per Cent of Reporting Capacity Operated Week Ended Oct. 28	Oct. 21	(a) Gasoline Production Week Ended Oct. 28	Oct. 21	Stocks Total Finished & Unfinished Motor Fuel (b) Week Ended Oct. 28	Oct. 21	Stocks of Gas Oil & Distillates At Refineries Week Ended Oct. 28	Oct. 21	At Terms. Trans. Pipelines Week Ended Oct. 28	Oct. 21	Stocks of Residual Fuel Oil At Refineries Week Ended Oct. 28	Oct. 21	At Terms. Trans. Pipelines Week Ended Oct. 28	Oct. 21
East Coast	588	608	95.6	98.9	1,670	1,780	18,511	18,427	7,128	7,426	6,720	6,328	5,880	6,095	4,361	4,247
Appalachian	107	119	83.6	93.0	432	439	2,611	2,706	277	250	149	136	364	371		
Ind., Ill., Ky.	505	541	91.0	97.5	2,150	2,215	10,771	10,946	3,940	3,953	973	895	2,797	2,841	43	51
Okla., Kans., Mo.	266	252	77.8	73.7	(c)955	(c)960	6,129	6,022	1,767	1,722	31	35	2,753	2,795		
Inland Texas	112	119	70.4	74.8	509	500	1,495	1,557	396	389			1,881	1,897		
Texas Gulf	853	829	89.8	87.3	2,810	2,699	9,539	9,291	5,662	5,729	594	580	7,607	7,519	306	342
La., Gulf	147	160	84.0	91.4	417	362	2,554	2,439	893	881	11	18	2,137	2,166	295	284
No. La., Ark.	35	47	69.1	85.5	104	106	324	389	242	230	11	6	645	630		
Rocky Mt.	39	47	60.9	73.4	208	185	991	1,002	127	124			416	443		
California	508	572	68.2	76.8	1,509	1,474	14,535	14,293	7,928	7,919	1,883	1,897	60,621	60,599	22,260	22,355
Total Reporting	3,163	3,294	83.5	87.0	10,764	10,720	67,560	67,072	28,360	28,623	10,372	9,895	85,101	85,356	27,265	27,279
U. S. Total (d)	3,520	3,650			12,232	12,182	72,660	72,122	(e)29,190	(e)29,463	10,372	9,895	(e)87,521	(e)87,781	27,265	27,279
U. S. Total 10-28-39 (d)	3,251				11,217		69,252		32,739				120,540			

(a) Includes straight-run, cracked and natural blended.
(b) Includes stocks at refineries, in bulk-terminals, pipe lines and in transit.
(c) 12% of reporting capacity in this district did not report gasoline production.
(d) Estimated, U. S. Bureau of Mines basis.
(e) For comparability with last year these figures must be increased by stocks "At Terminals, etc." in California district.

Oil Starts Biggest Winter Change-Over Campaign



REFINING TECHNOLOGY

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

Dear Reader:

Early this year when the "Varnish" discussion was at its height NATIONAL PETROLEUM NEWS suggested that more rational oil change schedules should be recommended to consumers. Early discussion by students of the increased tendency toward lubricating oil oxidation showed agreement that most of the difficulty experienced by motor vehicle operators would vanish if crankcases were drained at reasonable intervals.

Automotive maintenance men in charge of truck, bus and passenger car fleets discussed crankcase drain schedules and other factors affecting engine wear this past week at the National Transportation and Maintenance meeting of the Society of Automotive Engineers at St. Louis. In the course of this discussion it was brought out that crankcase drainage should be based on severity of service and not on any mystic mileage figure.

★ ★ ★

F. L. Faulkner of Armour & Co. took a shot at both the refining and automotive industries for using oil costs as a competitive selling tool. Mr. Faulkner has had charge of the huge Armour fleet of vehicles during a period in which they have turned up more than a billion miles on their speedometers.

"I do not believe the subject of oil draining and its effect on wear can be generalized," Mr. Faulkner said. "To set an arbitrary drain period without knowledge of the operation is ridiculous. A refiner that advertises his oil can be used a certain number of miles in service is subjected to the same criticism as an engine manufacturer that puts a mile period on the drain, as both are shooting at oil costs and neither is assuming any responsibility for engine wear."

★ ★ ★

Obviously Mr. Faulkner practices what he preaches. He told the S.A.E. meeting that he has operations with drains as frequent as 750 miles and others with intervals of 4000 miles. He suggests that it is time to drain when naphtha insolubles in the crankcase reach 1 per cent. Other factors affecting drainage periods are viscosity and acidity. Without laboratory control Mr. Faulkner suggests frequent oil drains to be on the safe side.

Discussing "Varnish" Mr. Faulkner said that in his observation lacquering is a result of overloading of engines and running over extended periods at high operating temperatures. The remedy is good oil changed frequently in a motor which is not subjected to undue strain.

★ ★ ★

A new contribution to the growing understanding between the oil and automotive industries was made recently when a lubrication engineer addressed a group of designers working for one of the automobile manufacturers. The group included not only the chiefs who attend meetings of the Society of Automotive Engineers, the American Petroleum Institute, the National Lubricating Grease Institute and the like, but also the engineers who stay closer to their jobs at the factory.

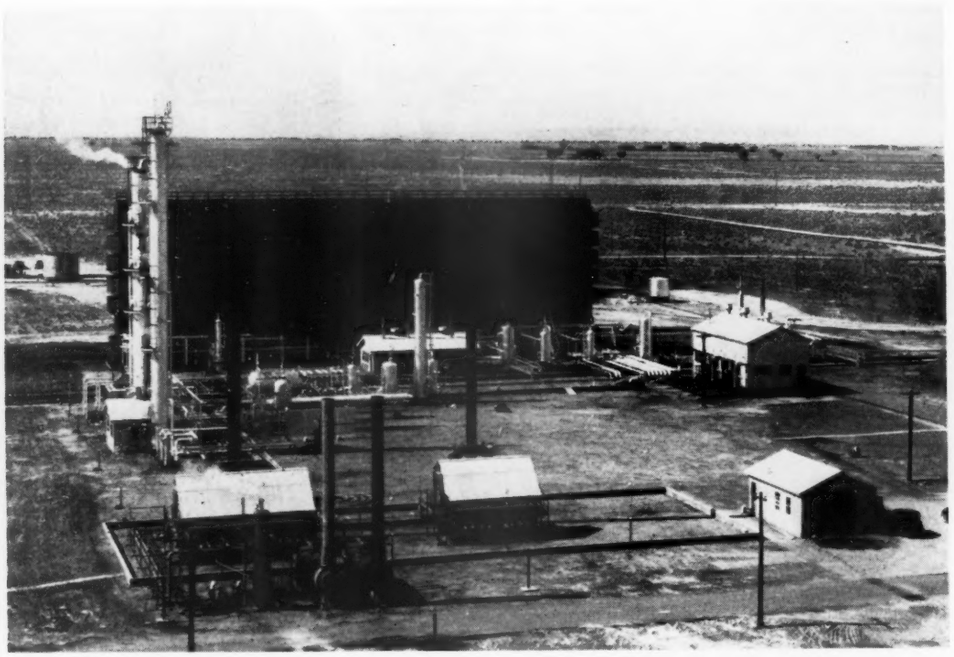
Mutual recognition of each other's problems has been fostered by the various associations for many years and liaison has been better year after year. But obviously the process could be speeded up by more of the sort of meetings just described at which the junior engineers of each industry could hear about problems of the other industry.

Of course the lack of complete understanding of the other fellow's problem is not confined to the men who make the automobiles and the men who refine the lubricating oils. Quite often the oil marketers do not fully understand reasons why cars have been built the way they have. The automotive industry could well afford to explain what they are doing and why to the oil industry as a whole. Individual car models would be much more likely to have the enthusiastic support of the oil men in contacts with the car owner if the manufacturer had told the marketer what all the shooting was about. It should be remembered that the oil man comes into contact with the car owners dozens of times for every contact which the car manufacturer can get through his sales and service organization.

Very truly,

J. C. Chatfield

Managing Editor,
Refining Technology Edition.



The water problem at natural gasoline plants often is more acute than at refineries. The water tower at this Union Oil Co. plant in the Rio Bravo field dominates the scene

769.6

Improved Equipment Reduces Water Requirements at Refineries

By J. M. Augustus and D. S. Frank*

ABSTRACT

Raw water requirement per barrel of crude oil refined at one refinery of The Pure Oil Co. during the past 12 months was 213 gallons as compared with 715 gallons in 1932. Decrease in water requirements is attributable chiefly to difference in types of water systems in use. A recirculated water supply system was in service during the past year which supplied the major portion of all cooling water. During 1932 water was supplied by the "once through" method with no cooling towers installed. During both periods refining operations took advantage of all opportunities to preheat the cold oil charged to stills by means of heat in residuum oils. Similar improvements were made at other Pure refineries.

Oil refinery water consumption is divided into two classifications requiring different degrees or methods of treatment. These are water for steam generation and for cooling purposes.

THE amounts of raw make-up water required for refining purposes per barrel of refined crude oil are much less today than they were ten years ago. This decrease in water requirements is due mainly to the refinement of refining equipment, and the use of the heat in the various hot streams of oil and vapor to preheat the cooler charges of oil streams to the stills and to also generate steam for use in the refining process. It is obvious that this latter step not only resulted in great fuel savings, but it also made a material decrease in cooling water requirements.

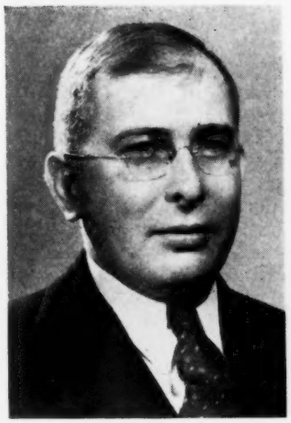
The water cooling systems used in oil refineries should be considered as of two different types. The original type known as the "once through" type operated with water direct from the source of supply, passing over the oil and vapor coolers or condensers and then the entire amount of warm water was returned to the source of supply at some point where its increased temperature would not have an effect of increasing the temperature of the supply to the refinery. Small amounts of this warm water were properly treated and used for boiler feed purposes or agitator wash water.

The improved type of water cooling system is known as the "recirculating type"; in it the warm water is passed over cooling towers or spray ponds and thus cooled to a usable temperature. In this system it is necessary to add amounts of make-up water to offset losses by windage in cooling towers or spray ponds, also evaporation in cooling boxes and other uses of water which decrease the return to the recirculating system.

It is obvious that in this latter system the amount of raw water required is much reduced as compared to the original system. It is this feature of the recirculating system which lends itself to the proper treatment of the

*Chief Combustion Engineer and Assistant Chief Combustion Engineer, The Pure Oil Co., Chicago.

Paper presented at Third Alabama Conference on Industrial Water Problems and the Disposal of Industrial Wastes, University of Alabama, Tuscaloosa, Oct. 27, 28, 1939.



James M. Augustus has been chief combustion engineer for The Pure Oil Co. for 15 years of his nearly 19 years with the company. An Ohioan by birth, Mr. Augustus attended Wittenberg College three years and completed his college training in mechanical engineering at Ohio State University where he entered in 1917. Some practical engineering experience was gained from three different connections before joining Pure Oil Co. in Columbus early in 1921. From the start he has been concerned with combustion problems and efficiency in fuel and steam consumption of boilers and stills

water in order to prevent scale deposition or corrosion throughout the system.

In order to give some idea as to the extent that cooling water requirements have been reduced per barrel of refined crude oil when the recirculating water system is compared with the old style "once through" system, the following is offered, the figures being taken from the Toledo, Ohio, refinery operations of The Pure Oil Co. for the year 1932 and for the year ending Oct. 1, 1939.

For the year ending Oct. 1, 1939 the water requirement per barrel of crude oil refined was 213 gallons. This was with a recirculated water supply system in service for the full period and supplying the major portion of all cooling water requirements from this system. For the calendar year of 1932 the water requirement per barrel of crude oil refined was 715 gallons. During this period the water requirements were supplied by the "once through" method. No cooling towers were installed at that time.

During the periods mentioned above, refining operations were of a type which took advantage of all opportunities to preheat the cold oil charged to stills by means of heat in residuum oils; hence, the above decrease in water requirements is attributable chiefly to the difference in the types of water systems in use.

Water Treating and Conditioning

The problem of treating and conditioning water for oil refinery consumption can be divided into two classes:

(1) Treating of water for steam generation purposes.

(2) Conditioning of water for cooling purposes.

Since the raw supply of water is identical for both uses, the method of conditioning must be different in order to obtain desirable operating results. The prime difference of the two systems is that in water used for steam generation low residual hardness and low solids are essential, whereas in water used for cooling purposes the scale forming constituents must be inhibited from coming down on the hot surfaces.

In softening water for steam generating equipment, we use both the hot lime-soda and Zeolite systems. In some cases the hot lime-soda treated water is filtered before entering the boilers, depending upon settling time available.

In the Cabin Creek, W. Va. refinery of The Pure Oil Co., the hot lime-soda treatment is used. This refinery which is located in the heart of the coal mining territory, is subject to considerable change in characteristics of raw water, and has been known to change from a carbonate water to a sulphate water, thereby necessitating a change in treatment.

At this plant all raw water is subjected to a preliminary cold treatment of lime and alum for correct pH control of the recirculating water used for cooling. The make-up water enters the base of the atmospheric cooling tower where it mixes with the circulating cooling water. A portion of this mixed water is then further treated for steam generating purposes.

An old type Graver hot softener is used and a typical raw water analysis entering the softener would be:

Total hardness	=	205 ppm
Ghost point or calcium hardness	=	154 ppm
Total alkalinity	=	35 ppm
Sodium chloride	=	31 ppm

This water is primarily a sulfate water consisting of 51 ppm magnesium sulfate, 119 ppm of calcium sulfate and 35 ppm of calcium bicarbonate.

Chemical treatment consists of lime, soda ash and sodium aluminate at a temperature of 200° F. The chemical feed is proportioned by the flow of water into the softener tank. Typical results of the effluent show:

Hardness	=	5 ppm
"P" alkalinity	=	37 ppm
"M" alkalinity	=	74 ppm

It will be noted that no excess hydrates are present in the softened water with an excess of soda alkalinity. Sufficient phosphate is then used as an after treatment in such quantity as to show an excess of about 20 ppm in the boiler water. Continuous blowdown is used, and amount is controlled by the solids content of the blowdown water.

At one of Pure's mid-western refineries Zeolite is being used to soften water for steam generating purposes. This softener unit is 8 feet in diameter, 16 feet high and has a total capacity of 1890 kilograins. This softener is being operated up-flow.

The water supply is from Maumee Bay and has a typical analysis as follows.

Hardness	=	230 ppm
Ghost point or calcium hardness	=	160 ppm
"P" alkalinity	=	0
"M" alkalinity	=	152 ppm
Sodium chloride	=	75 ppm
pH	=	7.6 ppm

This water is composed of 70 ppm magnesium sulfate, 8 ppm of calcium sulfate and 152 ppm of calcium bicarbonate.

This water softened satisfactorily; however, the high dissolved solids content of the effluent from the softener

Contents...

Less than one-third as much water is required by a refinery employing a modern water treating system than was required before this system was installed. Refining operations took advantage of all opportunities to preheat the cold oil by means of heat in residuum oils before as well as after installation of the treating system R-454

Extended periods between crankcase draining found too risky and too small an item in fleet operation and maintenance to take chances with. Drain period is dependent upon conditions of operation, not arbitrary mileage. Bus fleet finds value in lubricant additives R-458

The trend in industrial furnace burner design has been toward the "short flame" type and increased combustion speeds resulting in higher heat release. Design and operation of the fanmix type burner for both gas and fuel oil are described and discussed R-466

Composition of exhaust gases of internal combustion motors may be calculated with reasonable accuracy provided the composition of the fuel is known. G. W. Gleeson, professor of Chemical Engineering at Oregon State College, and Frank W. Woodfield, Jr., report on methods of calculation and how closely the calculated values check with experimental results R-461

New Patents R-464

Advertisers' Index R-467 and 55

David S. Frank has been in the Pure Oil Co. refinery control division for eight years and has been assistant chief combustion engineer for over four years. He is a native of Sparta, Wis., and a graduate of the University of Wisconsin

required a high blowdown rate at the boiler in order to prevent carry-over. Furthermore, in the winter the bay froze over and effluent waste water from the plant recirculated back into the pump suction. Under this condition, water of the following characteristics entered the softener:

Hardness	= 700 ppm
Calcium hardness	= 545 ppm
"P" alkalinity	= 0
"M" alkalinity	= 192 ppm
Sodium chloride	= 275 ppm
pH	= 6.9 ppm

Steam Production Improved

Softener runs were shortened, and since the bad water condition came at a period when steam consumption in the plant was high, the increase in blowdown requirement to prevent carryover seriously affected steam production. In order to eliminate this condition, pre-treatment of lime and alum was instituted last summer. Lime is fed into the center section of the settling tank which contains an agitator. Further down in this same section alum is fed in order to obtain good settling of sludge which accumulates in the bottom of the tank. The tank is periodically desludged.

At the present time raw water of the following characteristics enter the settling tank:

Hardness	= 180 ppm
Calcium hardness	= 140 ppm
"P" alkalinity	= 0
"M" alkalinity	= 140 ppm
pH	= 7.6 ppm

After the lime and alum treatment, the effluent from the sedimentation plant shows the following analysis:

Hardness	= 115 ppm
Calcium hardness	= 75 ppm
"P" alkalinity	= 10 ppm
"M" alkalinity	= 40 ppm
pH	= 9.3 ppm

Complete softening is not desired, and treatment was set up so that there was no excess hydrate present. This was done to keep the filter bed from plugging. This water is then filtered through Anthrafilt filters with the filter effluent showing a pH of 9.2, "P" alkalinity of 10, and "M" alkalinity of 35 ppm.

Since this water has too high a pH value for use in the Zeolite softener, sulfuric acid is used to bring the pH to the desired point. After the acid treatment which is fed into a filtered water storage tank, the water has the following test:

Hardness	= 100 ppm
"P" alkalinity	= 0
"M" alkalinity	= 30 ppm
pH	= 7.7 ppm

Prior to the use of pre-lime softening, the dissolved solids content of the water leaving the softener was 16.2 grains per gallon. Treating with lime, and then acid for pH control, the dissolved solids content has been decreased to 10 grains per gallon.

It will be noted that hardness has been decreased about 40% with a corresponding increase in softener capacity and daily decrease in salt required for regeneration. Blowdown requirements at the boiler have been decreased about 35% with resultant increase in net steaming capacity. Since the boiler does not have any blowdown heat exchange, the decreased blowdown can directly be evaluated on a fuel cost basis. The total net saving, allowing for the cost of chemicals used, has resulted in a saving of about 1.5c per 1000 gallons of water.

Water Conditioning

The problem of prevention of scale deposition on cooling coils has received considerable attention from oil refiners. The trend of the industry has been towards larger distillation units and better control of finished products. Since important specifications of certain products depend upon the cooling obtained in water condensers, it is important to maintain proper temperature of the oil leaving the condensing equipment. It is possible to have the capacity of refining units decreased due to inability to obtain desired degree of cooling.

An average sized refinery of 15,000 barrels daily crude capacity will normally use about 10 to 12 million gallons of water per day. With the advent of cooling towers this has been cut to 3,000,000 gallons per day. This was necessitated by not only the cost of the water involved, but due to inability to obtain sufficient supply to meet requirements.

Earlier in the paper mention was made that in Pure's West Virginia refinery all water, whether used for cooling or steam purposes, was first subjected to a cold lime-alum treatment. This system originally used sulfuric acid and alum to correct the pH of the recirculated water, although alkali equipment was also provided. The idea in back of this type of treatment was first the addition of alum to accelerate settling, and second the feed of acid to control the CO_2-alkalinity ratio to prevent the deposition of calcium carbonate.

Since each time the circulated water passed over the cooling tower some CO_2 was lost, thereby upsetting the calcium carbonate pH equilibrium, and as the make-up water was the only source with which to correct the equilibrium point of the circulated water, chemical feed of acid was adjusted on the basis of maintaining the correct equilibrium point.

Addition of make-up water varied, depending upon the rate of cooling in the tower and windage loss. In addition, since the blowdown from this system was recirculated water used for further softening for steam generation, the amount of blowdown depended upon steam produced. The feed of chemical was adjusted by test and from that setting the feed of chemical was proportioned to the flow of water to the settling basin.

Results obtained were not desirable, and the use of lime replaced the acid, with alum still used as a floc accelerator. The prime factor is controlling the pH of the recirculated water so that no calcium carbonate is deposited, yet at the same time prevent corrosion.

In order to test the recirculating water, we are using the procedure outlined by C. P. Hoover on "Treatment of Circulating Water for Cooling Purposes." This is a very simple test and our experience has been that it is fairly accurate. Equilibrium tests on recirculated water are made and the treatment of make-up water adjusted to maintain a slightly depositing water at all times. The temperature gradient in any one cooling box may be as much as 100° F.; furthermore, since a common header may feed water for several different cooling functions, it is necessary that equilibrium tests be performed at various temperatures. In oil refining one water box may cool a certain material from an entering temperature of 450° to an outlet of 200° F., whereas the box adjacent may

(*Continued on page* R-459)

BY LUMMUS

For well-known refiners, Lummus is now designing and building two complete plants for the production of aviation gasoline. These will be the third and fourth Lummus plants for 100 octane fuel.

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LUMMUS

PETROLEUM REFINING PLANTS

S.A.E. Maintenance Symposium Considers Engine Wear

ABSTRACT

Crankcase oils are too small a portion of automotive fleet expense to warrant risking extended drain periods beyond proven limits. The drain period can be determined in fleet operation by the percentage of naphtha insoluble material accumulated. This should not be over 1% and on this basis there are operations where the drain period is as low as 750 miles and as high as 4000 miles.

Better grades of lubrication, use of oil inhibitors, as well as further periodic treatment of piston crown with the same additive are shown necessary in operation of a fleet of buses. In the past year additives have been found helpful in controlling emulsibility, oxidation, and gum formation.

IT IS ridiculous to set an arbitrary drain period for crankcase oil without knowledge of the type of engine operation, F. L. Faulkner, Armour & Co. fleet operator whose experience is based upon over a billion miles operation of motor vehicles, stated in a Symposium on Engine Wear at the National Transportation Meeting of the Society of Automotive Engineers in St. Louis, Oct. 26-27.

It is also questionable logic to take unnecessary chances to reduce the item of oil and grease expense by use of low grade oils or extending the drain period to uncertain lengths. Recommendations of both oil refiners and engine manufacturers to extend the drain period were criticized as far as fleet operations are concerned although it was conceded that this might be satisfactory for ordinary operations. Mr. Faulkner gave as a reason that oil and grease expense will seldom be over 3% of the total operating costs of a large fleet while the maintenance expense will amount to 12-14% and may be adversely affected by unnecessary chances in reducing the smaller item.

Faulkner said he has operations where the drain period is as low as 750 miles and as high as 4000 miles, the difference being in the type of work performed by the vehicle. The time to drain crankcase oil is when 1% naphtha insoluble material has accumulated. Three things in particular were named as determining conditions for eliminating abnormal wear. These are viscosity, volume of insoluble material, and acidity. However, since it is obvious that these factors cannot be determined without laboratory control, it was said to be a much safer practice to drain the crankcase often than to prolong the drain period and encounter difficulty.

A case was cited where an operator attempted to cut operating costs by using a poor grade of crankcase oil. It was not until careful study was made of the operations that it was discovered that the cause for the difficulty was the rapid breakdown of the oil and the depositing of tarry materials within various parts of the engine. The filter could not handle the excess quantity of sludge produced and as a result no part of the engine was receiving adequate lubrication.

Faulkner's experience has been that to obtain the longest engine life between reconditions periods, the engine should be broken in with a good quality light oil, continuing with this viscosity until consumption becomes too great, then stepping up one oil number and continuing again until consumption becomes excessive. At this stage it is time to re-ring or make necessary mechanical corrections to lower consumption. However, if this changing of viscosity is carried too far, difficulties may be encountered which could have been avoided by doing the necessary mechanical work and continuing to use the low viscosity oil.

Effect of Closer Fits

In the average engine the greatest amount of wear occurs near the upper end of the stroke of the piston and with increased speed and compression pressures upper cylinder wear is becoming more conspicuous. Closer fits to control higher pressures necessitates lower viscosity oils to lubricate the upper cylinder walls. Lower viscosity oils, however do not have the oxidation stability to adequately protect the cylinder walls. This disintegration of the wall surface is a combination of two elements, chemical attack and erosion. Three approaches are being made to this problem to reduce metal loss: first, better finishes for the cylinder wall and ring surfaces; second, the addition of oxidation inhibiting agents and highly polar compounds to the crankcase oil, and third, the addition of surface active materials to the fuel to protect the surface against corrosive attack.

Mr. Faulkner made the following observations regarding the varnish or lacquer problem. Where varnish has occurred, operating temperatures have been high over sustained periods. Engines have been stressed fairly high and in some cases considerably overloaded. These engines have been of a design that operate normally with high crankcase temperatures, and have an oiling system that aerates the oil more than average. Until more is known about this subject, it will be well to take all possible precautions, and to use good oil and drain frequently on any jobs showing an inclination to varnish.

Although lubrication was considered the most important single factor in connection with engine wear and although also there may be many reasons for errors in design and in manufacturing to influence engine wear adversely, the blame for lack of uniformity in engine life, he said, rests largely with the operator. This is shown by the fact that poorly designed or manufactured engines have done reasonably good jobs in the hands of good operators where well designed engines have shown up poorly in the hands of average operators.

Oil Consumption vs. Cylinder Wear

G. W. Laurie, manager of automotive transportation for The Atlantic Refining Co., gave some consideration to oil consumption in relation to cylinder wear, reporting that he had kept a rather close check on this item. A typical oil consumption curve of a truck from the time it was placed in service until 90,000 miles operation was completed showed that oil mileage decreased at a consistent but steady

rate until after 40,000 miles service. At this point there was a sudden decrease in oil mileage.

This type of data was obtained on enough units to prove that a critical operating point exists when the oil mileage approaches 250 miles per gallon. Therefore, regardless of the actual mileage, this type of unit is scheduled for a re-ring installation when the oil consumption reaches 250 miles per gallon. The sudden drop in oil mileage is an indication of ring ineffectiveness caused by ring wear, loss of ring tension, and in many instances the clogging of the oil ring return vent. The installation of two sets of rings was found not to increase the rate of cylinder wear but wear figures showed a trend in the opposite direction.

Mr. Laurie also had some interesting observations on valve life. He had evidence showing that drops in tension of valve springs are "unquestionably to a large degree instrumental in shorter valve life." A point of 56-57 pounds spring pressure, involving a drop of 7-8 pounds was found to be critical. Consideration was given to spacers designed to increase the initial valve spring pressure 10 to 12 pounds so that even the poorest spring should be 58 pounds or more during the intended spring operating period. These spacers, approximately ⅛-inch thick were placed above the spring. The results using the spacer appeared to have enough merit to warrant their general use, he said.

Oil Inhibitors Needed

Experiments which have been carried out by the Surface Transportation Corp., New York, have convinced W. J. Cumming of that company that modern engines of the high compression type require not only the better grades of lubrication but the addition of inhibitors and still further the periodic treatment of the piston crown to doses of the same additive. With this treatment the company has been able to keep piston rings free and clean up to 50,000 miles of operation and this mileage is expected to be extended materially.

In the process of developing this procedure, a number of steps in the production of sludge and ring sticking were studied and the following facts established: Sludging increases rapidly as ring and bore wear progresses and as rings are stuck and clogged. Sludge deposited in depressions and cavities in the crankcase and in oil passages and channels of the entire engine requires the continual washing effect of additives in the crankcase oil to dislodge it. Unless sludge is continuously dislodged and trapped in filtering devices, it will eventually clog the small oil passages of the lubrication system.

Engines with shallow, compact crankcases are less liable to sludge than those with expansive cases. Wide groove wiper type oil rings are capable of controlling crankcase oil so well that additives in the crankcase have little effect in reducing ring sticking and clogging. Positive control of sticking and clogging requires periodic dosings of inhibitor over the piston top. This treatment dissolves gum accumulation adhering to all rings and ring grooves. Additives in the fuel are helpful but in nowise as effective as the dosing method.

Crankcase ventilation becomes more and more important as compression pressures are raised, Mr. Cumming said, and, of course, also in the presence of gradually increasing blow-by. Providing one additional breather at a strategic point has often relieved the sludging tendencies of many engines.

Cumming said there are a number of reasons why it is difficult to select a lubricating oil for the automotive diesel engine. High temperatures and compression pressures require the oil to function under severe stress. No diesel lubricant should be selected by specification, but should be chosen after actual operating experience, he said. Because they do not decompose into gums naphthenic crudes are preferred over paraffinic crudes as sources of diesel lubricating oil.

Viscosity of diesel lubricating oils was said to be probably the most important characteristic and under operating conditions it should remain fairly constant. Cumming's opinion is that all automotive diesel engines should be provided with oil cooling radiators. The tendency to form carbon was considered the next most important property of the oil to be selected, then pour point. At present, mention of sulfur content is omitted from lubricating oil specifications because there "are highly sulfurous oils available today that apparently remain stable, under conditions found in our service."

If wide variations in crankcase temperatures must be accepted, it may, in some cases, be necessary to use a lubricant containing additives, Cumming said. In the past year the use of oils containing additives has been found exceedingly helpful in controlling emulsibility, oxidation and gum formation.

The lubricant should be well filtered, preferably in two stages, cleanable and disposable types. Most contaminants can be controlled to a certain extent, by the proper selection of oil and air filtration systems. There are two by-products of combustion, that should be gathered as soon as possible after they are formed. These are water and free carbon. Cumming said he knew of no better absorbent for water than cotton and no better method of screening free carbon than enmeshing it in the strands of cotton waste. A filter of this type is used in the second stage of filtration and the cotton waste is disposed of every 4000 miles. Edge type cleaners are also used and removed at the same intervals for cleaning.

Improved Equipment Reduces Water Requirements

(*Continued from page* R-456)

cool 200° entering material to 100° F. It is, therefore, apparent that the circulating water must protect as much as possible and a water which might be in balance at 100° F., may be 20 ppm depositing at 200° F.

When scale accumulations become too heavy, the system is made aggressive in order to remove the heavy scale formation. This period is ordinarily not long enough to sufficiently corrode the clean coils. The equilibrium test does not seem to hold for steel side sheets and bottoms of cooling boxes, and in some cases, these parts have showed corrosion present when cooling coils have some scale deposition. No doubt oxygen plays an important part in this action. however, to date our experience shows it to be more economical to replace sheets in preference to the use of chemical to eliminate the oxygen present.

Algae Control

The chemical treatments used for the prevention of algae growth in recirculating water systems as used in oil refineries is somewhat complicated by the ever presence of oil in the water systems, this oil coming mostly from leaky joints in condenser boxes of coolers, which is a continuous problem in connection with the operation of such coolers. This oil covers both live and dead algae, and it prevents proper chemical action, which action would otherwise be effective in the elimination of algae growth. This difficulty can be partly overcome by frequent skimmings of the reservoirs or flushing of condenser boxes at points where such algae usually accumulates.

The study of algae growth and the use of algaecides is a subject which merits discussion as a separate item, and is not within the scope of this paper.

I might add that we have used copper sulfate, potassium permanganate and are now using hypochloride of lime in conjunction with ammonium sulfate.

CORRECTION

F. L. Koethen, whose picture appeared on page R-437, Oct. 18, should have been identified as Technical Director of American Lubricants, Inc., Buffalo.

KELLOGG Combination Casinghead and Polymerization Plants . . . are adaptable to existing operations

The ability to vary the design of Kellogg combination casinghead and polymerization plants to suit existing plant facilities, feed stocks and capacity requirements should interest all manufacturers of natural gasoline.

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- Increased casinghead recovery
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Stoichiometric Calculations of Exhaust Gas

By G. W. Gleeson* and
F. W. Woodfield, Jr.**

ABSTRACT

Reasonable accuracy can be obtained in the calculation of exhaust gas composition of internal combustion motors by the use of equilibrium constants of the water-gas reaction and the dissociation of water reaction, providing the fuel composition is known. The calculations do not refer to any particular motor or type of motor so deviations may point to improper conditions of operation in the motors actually used.

This article reports further studies at Oregon State College supplementing the series of articles by Prof. Gleeson and W. H. Paul which appeared in NATIONAL PETROLEUM NEWS in 1934 and 1936. Previous articles in the series were: The CO/H_2 Ratio in the Products of Combustion from Automotive Engines, N.P.N. Sept. 12, 1934, p. 32; Exhaust Gas Analysis (three parts Sept. 26, p. 21; Oct. 3, p. 42 and Oct. 10, 1934, p. 35; and, Water-Gas Reaction Apparently Controls Engine Exhaust Gas Composition, N.P.N. Feb. 19, 1936, p. 25.

Introduction

The method outlined in this paper has been applied to calculate, stoichiometrically, the composition of the exhaust gas from a motor burning pure octane and for a motor operating on a 20 per cent ethyl alcohol 80 per cent iso-octane blend. The results, as presented in the Table of calculations and on Figures One and Two, are interesting because they represent one of those extremely gratifying situations where entirely theoretical considerations can be applied to obtain figures which agree very well with experiment.

Discussion

It has long been known that the composition of the exhaust gas from an internal combustion motor is largely controlled by the water-gas reaction:

$$H_2 + CO_2 = H_2O + CO \quad \ldots\ldots\ldots\

A = Mols O_2 per C atom in the carborated fuel mixture.

B = Mols H_2 per C atom in the fuel, or 9/8 for octane.

It is obvious that "A" varies with the air-fuel ratio. It also includes any oxygen which may be present in the fuel before combustion.

The Mol ratio of N_2 to O_2 in air is "3.76".

In the order in which the simultaneous equations are used for the trial and error solutions necessary, the expressions are (letting molecular symbols in parenthesis represent numbers of mols, or partial pressures):

Hydrogen Balance

$$(H_2O) + (H_2) = \frac{B}{3.76A} \times (N_2) \quad \ldots\ldots (1)$$

Combination of (3) and (4)

$$(CO = \frac{(N_2) \times k_{w.g.} \times (H_2)}{3.76A[\{(H_2O) + k_{w.g.}\} \times (H_2)]} \quad \ldots\ldots (2)$$

Carbon Balance

$$(CO_2) + (CO) = \frac{(N_2)}{3.76A} \quad \ldots\ldots (3)$$

Water Gas Equilibrium

$$(CO_2) = \frac{1}{k_{w.g.}} \times \frac{(CO) \times (H_2O)}{(H_2)} \quad \ldots\ldots (4)$$

Water Dissociation Equilibrium

$$(O_2) = \left[\frac{(H_2O)}{(H_2)}\right]^2 \times k_{H_2O} \quad \ldots\ldots (5)$$

Oxygen Balance

$$(O_2) + (CO_2) + \frac{(CO) + (H_2O)}{2} = \frac{(N_2)}{3.76} \quad \ldots\ldots (6)$$

Equation (2) may be obtained by substituting (3) in (4), eliminating CO_2 between them.

If we analyze equation (1), the hydrogen balance, it becomes:

$$\text{Mols } H_2 = \frac{\text{Mols } H_2/\text{C atom}}{\frac{\text{Mols } N_2}{\text{Mol } O_2} \times \frac{\text{Mols } O_2}{\text{C Atom}}} \times \text{Mols } N_2,$$

or, Mols H_2 = Mols H_2.

The carbon balance, Equation (3), and the oxygen balance, Equation (6), may be checked similarly.

Calculations Procedure

(1) Calculate "A" as mols O_2 per C atom.

(2) Fix N_2 content by approximation.

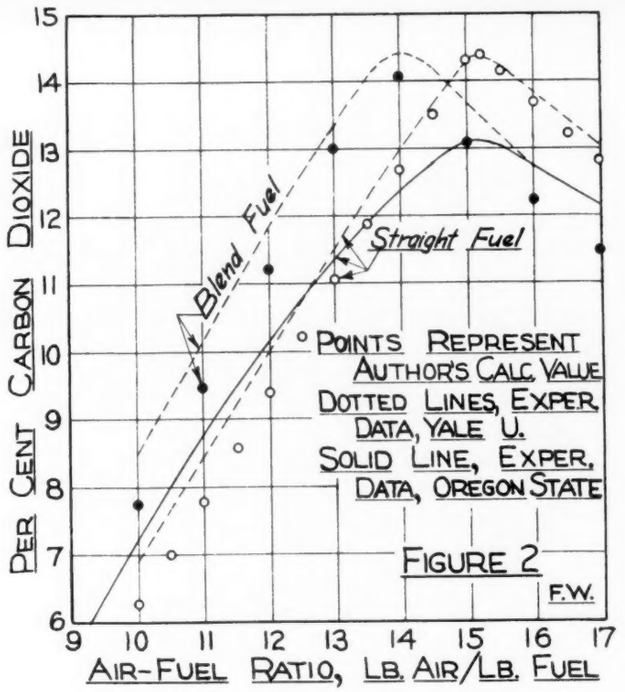

Fig. 2—Comparison of calculated per cent carbon dioxide with experimental curves for both straight gasoline fuel and twenty per cent ethyl alcohol blend fuel

(3) Assume a H_2 content and calculate (H_2O) from Equation (1).

(4) Calculate (CO) by Equation (2).

(5) Calculate (CO_2) from either Equation (3) or (4). The two equations should give identical answers.

(6) Calculate (O_2) from Equation (5).

(7) Check by Equation (6).

(8) If the two sides of (6) do not balance, repeat the calculations varying (H_2) until a balance is obtained.

(9) Total number of mols present = P.

$P = (CO_2) + (H_2O) + (O_2) + (N_2) + (CO) + (H_2)$.

Directly obtainable from these figures are the volume per cents of the six molecular species present. For the purpose of comparison with orsat analyses, they should be converted to per cent on the dry basis.

As an aid in fixing the initial N_2 per cent and assuming a value for (H_2), it is advantageous to approximate the true values by means of any one of the experimental curves

Table I

Calculated Exhaust Gas Composition

(Percentages Converted To Dry Basis)

PURE OCTANE FUEL, B = 9/8

Air-Fuel Ratio Lbs. Air Per Lb. of Fuel	Value of A Mols. O_2 Per Mol. of C	% O_2	% CO_2	% N_2	% CO	% H_2
10	1.032	0.00	6.27	73.65	12.70	7.39
10.5	1.084	0.00	7.00	75.30	11.48	6.24
11	1.135	0.00	7.79	76.82	10.22	5.17
11.5	1.186	0.00	8.58	78.24	8.96	4.23
12	1.238	0.00	9.39	79.52	7.70	3.39
12.5	1.290	0.00	10.23	80.71	6.42	2.64
13	1.342	0.00	11.06	81.81	5.15	1.98
13.5	1.393	0.00	11.89	82.77	3.93	1.41
14	1.445	0.00	12.69	83.68	2.72	0.915
14.5	1.496	0.0003	13.51	84.49	1.52	0.483
15	1.548	0.006	14.31	85.24	0.34	0.101
15.2	1.569	0.14	14.40	85.37	0.068	0.0201
15.5	1.600	0.56	14.15	85.25	0.034	0.0100
16	1.651	1.23	13.68	85.06	0.022	0.0065
16.5	1.703	1.89	13.23	84.86	0.017	0.0051
17	1.755	2.47	12.83	84.68	0.016	0.00433
20 Per Cent Ethyl Alcohol—80 Per Cent C_8H_{18} (By Vol.), B = 1.180						
10	1.163	0.00	7.76	77.17	9.88	5.19
11	1.276	0.00	9.49	80.06	7.20	3.25
12	1.389	0.00	11.23	82.41	4.57	1.79
13	1.502	0.00	13.00	84.40	1.94	0.66
14	1.614	0.354	14.06	85.53	0.0424	0.0132
15	1.727	1.81	13.09	85.08	0.018	0.0054
16	1.840	3.06	12.23	84.69	0.013	0.00387
17	1.952	4.15	11.50	84.34	0.010	0.00312

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Minimum Plant Equipment
PRODUCES
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Higher Quality Oils
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12 P

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available. However, the ratios between the six variables (which control the volume per cents) will reach their required values when Equation (6) balances regardless of the amounts initially assumed for (N_2) and (H_2).

Conclusions

(1) Exhaust gas composition from internal combustion motors may be calculated with reasonable accuracy from the equilibrium constants of the water-gas reaction and the dissociation of water reaction.

(2) The extent to which the calculated values check the experimental indicates that Haber was essentially correct in his estimation of 1500° C. as the "freezing" temperature of the water-gas equilibrium.

(3) The method may be applied to any fuel provided the composition of the fuel is known.

(4) The calculated values represent somewhat ultimate conditions and deviations of experimental results from the calculated may point to uneven cylinder distribution, misfiring, or air leakage.

(5) The calculations are perfectly general because they are based on the composition of the carborated fuel and the values of $k_{w.g.}$ and k_{H_2O} as determined chemically. In no case do they refer to a particular motor or type of motor, nor do they use constants determined empirically on any motor. Consequently the calculated values cannot be expected to check experimental values obtained on a particular engine any closer than two motors, selected at random, would be expected to agree.

We find, by comparison with the experimental results of several investigators, agreement of approximately this magnitude. Figures One and Two show graphically the agreement between the calculated values of the author and actual experimental measurements for per cent H_2, N_2 and CO_2.

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Sets Million-Hour Safety Record

In recognition of 1,000,000 hours worked by the Research and Development Department of The Atlantic Refining Co. without a disabling injury, an accident-prevention certificate was awarded by the American Petroleum Institute recently. The period covered is from Nov. 16, 1936 to July 6, 1939.

Dr. T. G. Delbridge, head of the department, states that "This A.P.I. Award . . . did not just come to us; our whole crowd went after it; we are after a second one."

Small posters being put around the Atlantic plant last week carry, in addition to the monthly record of lost time injuries for the company as a whole, a replica of the certificate and a picture of Dr. Delbridge.

Roy B. McKee has been elected vice-president of Freedom Oil Co., Freedom, Pa. Mr. McKee has been manager of refinery sales for the past 18 years and has been with the company 21 years.

John R. Schmitt has been elected vice-president and a director of Tiona Petroleum Co., Philadelphia. He was formerly treasurer of Alliance Oil Corp., New York, and before that was associated with Tide Water Associated.

New Patents

REFINING PATENTS

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, NW, Washington, D. C., from whom copies may be obtained at rate of 25c each. State number of patent and name of inventor when ordering.

October 3, 1939

Method of continuously hydrofining carbonaceous vapors with solid sulfur sensitive catalytic surfaces—Marion H. Gwynn, Leonia, N. J. Filed Mar. 8, 1937. No. 2,174,510.

Process of refining hydrocarbon oils by means of organic oxides—Ernst Terres, Berlin, Germany, and Josef Moos, New York, and Erich Saegebarth, Jackson Heights, N. Y., assignors to Edeleanu G.m.b.H.

Process for sweetening hydrocarbon oils—G. H. von Fuchs and L. E. Border, Wood River, Ill., assignors to Shell Development Co. Filed Feb. 19, 1937. No. 2,174,810.

Method for treating oil emulsions—J. V. Stevens, Sapulpa, Okla. Filed Aug. 10, 1935. No. 2,174,849.

Process of treating hydrocarbon oil—P. C. Keith, Jr., Peapack, N. J., assignor to Gasoline Products Co. Filed July 22, 1937. No. 2,174,858.

Treatment of hydrocarbons—Vladimir Ipatieff and Herman Pines, Chicago, assignors to Universal Oil Products Co. Filed Oct. 5, 1936. No. 2,174,883.

Method of and apparatus for superheating oil in vapor phase—F. H. Praeger, Bala-Cynwyd, and T. B. Leech, Narberth, Pa., assignors to Alcorn Combustion Co., Philadelphia, Pa. Filed June 9, 1938. No. 2,174,893.

Refining liquid hydrocarbon distillates—W. C. Ault and C. A. Hochwalt, Dayton, Ohio, assignors to Monsanto Chemical Co. Filed Mar. 3, 1936. No. 2,174,908.

Dewaxing oil—Lyle Dillon and C. E. Swift, Glendale, Calif., assignors to Union Oil Co. (Cal.) Filed July 17, 1933. No. 2,174,938.

Diesel fuel—D. E. Badertscher and G. S. Crandall, Woodbury, N. J., assignors to Socony-Vacuum Oil Co. Filed Oct. 8, 1937. No. 2,174,680.

Lubricating composition—S. P. Waugh, Westfield, N. J., assignor to Tide Water Associated Oil Co. Filed Jan. 8, 1936. No. 2,174,907.

Process for recovery of organic oxy-compounds — Theodore Evans, Berkeley, Cal., assignor to Shell Development Co. Filed Aug. 10, 1937. No. 2,175,080.

★ ★ ★

October 10, 1939

Treatment of hydrocarbon oils—H. C. Dieserud, Montclair, N. J., assignor to Texas Co. Filed June 17, 1931. No. 2,175,180.

Apparatus for heating petroleum—A. E. Nash, Philadelphia, and F. E. Shelly, Jenkintown, Pa., assignors to Alcorn Combustion Co. Filed Apr. 20, 1934. No. 2,175,211.

Process for producing and recovering balanced chain aliphatics (suitable as high anti-knock motor fuel)—E. A. Ocon, Yonkers, N. Y. Filed Jan. 8, 1938. No. 2,175,359.

Processing hydrocarbon oils—J. K. Roberts, Flossmoor, and J. H. Forrester and R. J. Diwoky, Chicago, Ill., assignors to Standard Oil Co. (Ind.) Filed May 29, 1937. No. 2,175.362.

Conversion of hydrocarbon oils—L. C. Huff, Chicago, Ill., assignor to Universal Oil Products Co. Filed Jan. 2, 1931. No. 2,175,397.

Treatment of light petroleum distillates—Arthur Lazar and T. F. McCormick, Associated, Cal., assignor to Tide Water Associated Oil Co. Filed Jan. 24, 1936. No. 2,175,437.

Method of fractionation—P. D. Barton, Chester Co., Pa., assignor to Sun Oil Co. Filed Mar. 29, 1938. No. 2,175,590.

Refinement of hydrocarbons such as benzol or crude oils—Gerhard Ruhl, Germany, assignor to Koppers Co. Filed Apr. 8, 1936. No. 2,175,619.

Art of cracking—E. C. Herthel, Flossmoor, Ill., assignor to Sinclair Refining Co. Filed Mar. 25, 1933. No. 2,175,663.

Distillation of mineral oil—C. F. Slawson, Lockport, Ill., assignor to Texas Co. Filed June 23, 1934. No. 2,175,817.

Breaking mineral oil emulsions—Daniel Stryker, White Plains, N. Y., assignor to Texas Co. Filed Apr. 15, 1937. No. 2,175,818.

Treatment of petroleum bituminous materials—J. E. Gambrill, Drexel Hill, Pa., assignor to Atlantic Refining Co. Filed Dec. 16, 1936. No. 2,175,189.

Beneficiation of lubricating oils—J. M. Musselman and H. P. Lankelma, Cleveland, assignors to Standard Oil Co. (Ohio) Filed Apr. 29, 1936. No. 2,175,548.

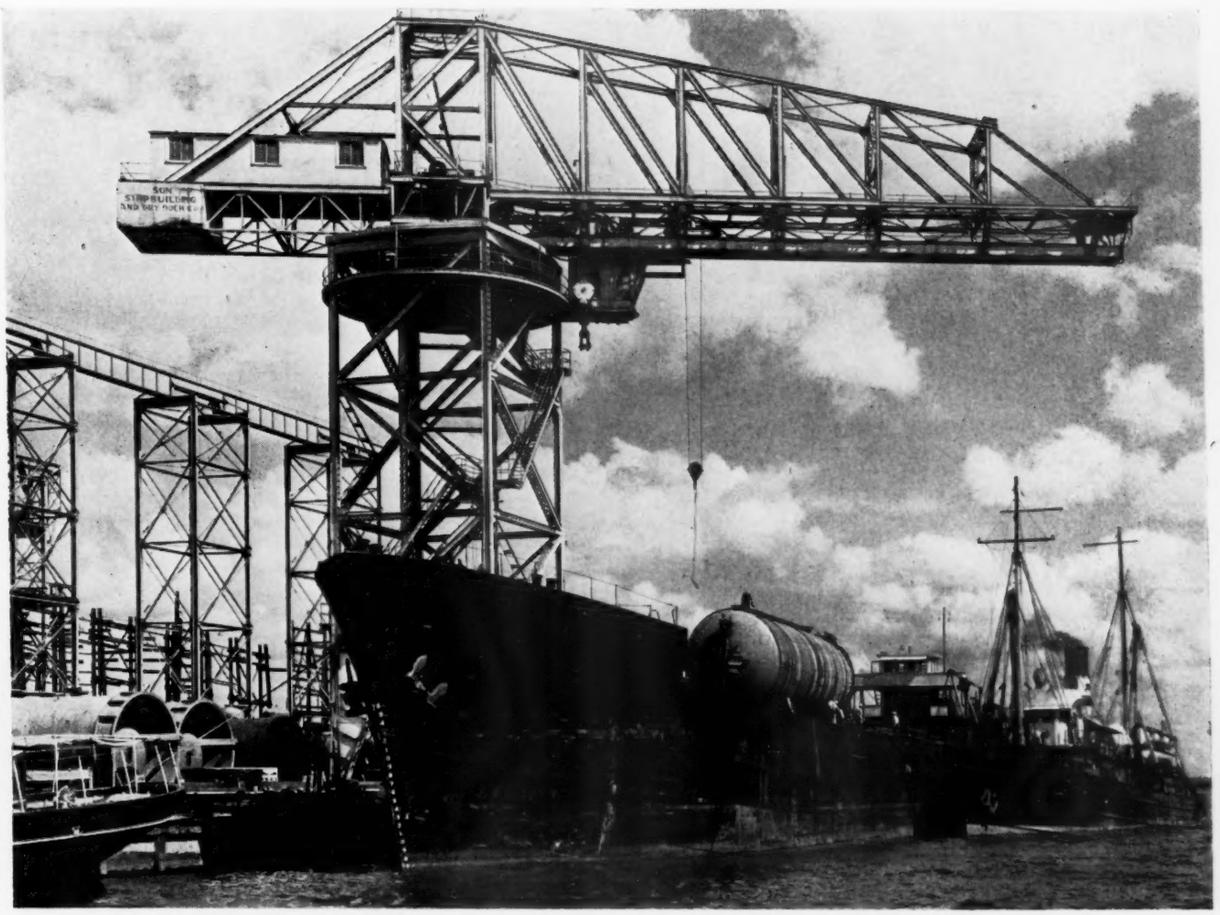
Liquid Composition (lubricant)—F. M. Clark, Pittsfield, Mass., assignor to General Electric Co. Filed Sept. 30, 1936. No. 2,175,877.

Emulsifiable oil—M. T. Flaxman, Wilmington, Cal., assignor to Union Oil Co. (Calif.) Filed Nov. 23, 1936. No. 2,175,988.

Alco Shifts Sales Emphasis

Because of the demand for railway equipment and other products manufactured by it, the American Locomotive Co. is curtailing its activities in the processing and construction of complete refinery equipment.

The manufacturing, engineering and sales of heat transfer equipment, pressure vessels, fabricated plate work and allied lines will be continued. The activities of the American Locomotive Co. in these lines will be expanded as the occasion demands. The effect of this program will be the greater concentration in the locomotive company's plants of the work heretofore done.



LOADING at Sun's Plant a Fractionating Tower for Water Shipment. This tower is 18 ft. diameter. 3 other towers are stored on the Pier awaiting to be loaded. These are 14′ 8″ diameter x 83′ 0″ long, too large for rail shipment.

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New Type Burners

Speed Combustion

Provide Higher Heat Release

By Edwin L. Dennis*

This article is a condensation of a paper presented before a Regional Meeting of the Western Petroleum Refiners Association at Wichita, Kan., Oct. 5.

ABSTRACT

A trend in design of burners toward the "short flame" type has resulted from recognition that most satisfactory furnace conditions are secured from the burner completing combustion most rapidly. Increased combustion speeds result in higher heat releases than where secondary combustion takes place and its disadvantages are eliminated.

Among a number of burners developed is a fanmix type employing new principles of operation. It mixes the gas with the air essentially in the plane of rotation of a fan which is propelled by gas streams emitting from orifices in revolving spokes mounted between the fan blades on the same hub. These burners are designs individually to suit the Btu. value of the gas, the gas pressure, and the service required. Fanmix oil burners are propelled by steam.

A DEFINITE trend in recent years in design of burners has been towards a "short flame" type. It has been established that furnace conditions in capacity of B.t.u. input per hour, increased radiation from the walls and floors as well as the presence of carbon dioxide and water vapor in the products of combustion will best be secured from the burner completing combustion most rapidly. Higher "flame" temperature will exist by faster combustion and less excess air when complete combustion is secured. The radiant heat produced varies as the fourth power of the absolute temperature which makes the "short flame" burner desirable.

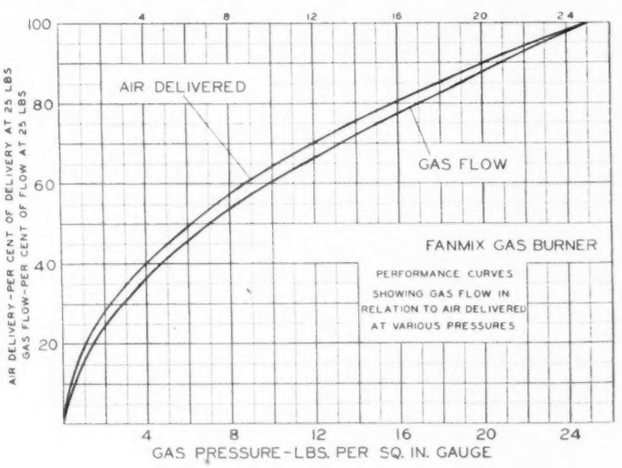
When the reaction of combustion of a gas is speeded up, the temperature of the combustion gases will rise as all of the heat is liberated nearer the burner and the combustion gases will expand closer to the burner tending by expansion due to temperature to spread over the furnace nearer to the front or burner wall. But the heat distribution can be governed. With increased combustion speeds, it is obvious that much higher heat releases can be secured in a furnace than is possible where secondary combustion takes place.

We can consider that by propagation of combustion from gases, accepted as producing non-luminous flames, a mass of heated gas is liberated into the furnace containing a certain amount of thermal heat and having a temperature proportionate to the rate of combustion and somewhat inversely proportionate to the mass occupied. Therefore, the temperature of combustion will be higher with less excess air, provided combustion is complete to the end products because of less mass, and higher again if combustion is completed in less volume of the furnace.

A "reducing" atmosphere will exist in a furnace when combustion is incomplete and this results in serious impingement on the tube areas either locally or generally. Secondary combustion will create this condition when heat releases per cu. ft. per hour exceed the burner capacity for complete combustion before impingement on tubes or walls.

High furnace temperatures sometimes make secondary combustion invisible to the eye. However, when typical tube failures occur or failures in tube sections located where the combustion gases enter the tube banks are observed, this can usually be suspected to be due to secondary combustion creating local "hot spots" due to hydrogen liberation. A reducing atmosphere is more damaging to tubes than oxidation.

A "neutral" atmosphere exists in a furnace provided combustion is complete within the furnace without impingement and the inert gases (carbon dioxide, water vapor, and nitrogen only) exist when the gases enter the tube areas and when excess air is kept below 10%. A sure test that combustion is complete before impingement takes place is to momentarily fire the burners at maximum capacity before the furnace becomes radiant. If no impingement then occurs, it cannot exist when the furnace is hot, since incandescent or radiant walls are catalytic in effect on rate of combustion and reduce flame lengths materially. Analyses of the gas samples from various sections of the furnace will determine when combustion is complete, as carbon monoxide is bound to be present in measurable quantities if combustion is incomplete. When means are accessible for testing, more atten-



The fanmix burner design depends upon development of a curve of power developed by escaping gas paralleling the curve for power required to drive the fan at the proper speed to deliver correct amounts of air through the range of gas pressures

*Coppus Engineering Corp., Worcester, Mass.

tion should be paid to the presence of carbon monoxide at or near the entrance of the combustion gases into the tube banks.

Burner Development

Quite a number of burners have been developed in the past few years. A great deal of improvement has been made in the design of air registers to improve the older type ring burners and center-fired diffusion type. The advent of improved types of partial premix burners (essentially the Bunsen type) has shown up advantageously and has been received favorably by industry.

Bunsen, the fore-runner of all burner designers, stated, "An ideal gas burner would be one with an infinite number of gas orifices interposed across the air stream." Analysis of Bunsen's statement means that if the gas orifices of a burner were so numerous and infinitely small that the infinite quantity of gas emitting would immediately enter the furnace with the necessary oxygen in the air stream, only primary combustion would occur and therefore the flame produced or region of combustion would be held to the absolute minimum.

The premix burners where all of the air is premixed with the gas outside the furnace by Venturi injection, proportioning valves, or automatic proportioning and mixing by means of separate power source, are again finding applications in the improved form. Multi-jet designs have recently appeared where the combustion zone can be varied by changing the angle of the various jets. Some of these are of the semi-premixing type while others depend on furnace turbulence together with inspirated air to complete the mixing within the furnace. The maximum working pressure of the gas within the burner manifold for most efficient operation is limited to about 15 pounds gage pressure.

New Principles Employed

Another design was developed that is individual and employs new principles. It is known as the fanmix type burner, deriving its name from the fact that it is neither of the premix nor multiple jet type, but rather mixes the gas with the air essentially in the plane of rotation of a fan which is propelled by the gas streams emitting from orifices in revolving arms mounted integral with the fan blades. This burner utilizes the energy in the gas due to pressure, to induce air flow into the casing and to overcome pressure drop across the burner. The maximum operating pressure is relatively unlimited. The manufacturers rate the capacities at 25 pounds operating pressure, but over 40 pounds have been used. The effect of pressure on this type burner is only to limit the capacity. On natural gas of seven pounds pressure the capacity of the burner is about 55% of its capacity with 25 pounds pressure. No air can enter the furnace with this burner, that has not been mixed with the gas escaping from the gas orifices.

The design of this burner is built around the characteristics of the fan blades which deliver a known amount of air per revolution to the furnace. The power required to drive the fan from zero r.p.m. to maximum operating speed was determined in wind tunnel tests. Bolted to the hollow fan hub between blades are mounted hollow spokes drilled with orifices which admit the gas transverse to the air stream. By calculation of the power developed by the gas escaping from these orifices to develop a curve that is parallel to the curve of the power required to drive the fan at the proper speed to deliver air for combustion in the correct amounts, this burner will maintain a constant air-gas ratio against the same furnace draft conditions when operating anywhere from a few ounces of pressure to pressures in excess of 25 psi.

The curvature of the fan blades is such that the amount of gas at any point from the hub to the extremity of the fan in the cross section is essentially in the same proportion to the amount of air delivered by the fan at that point as at any other point in the plane of rotation of the fan. The driving action of the escaping gas acts

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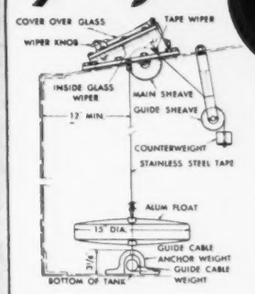

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INDEX TO ADVERTISERS

Refining Technology Section

(*See also page 55*)

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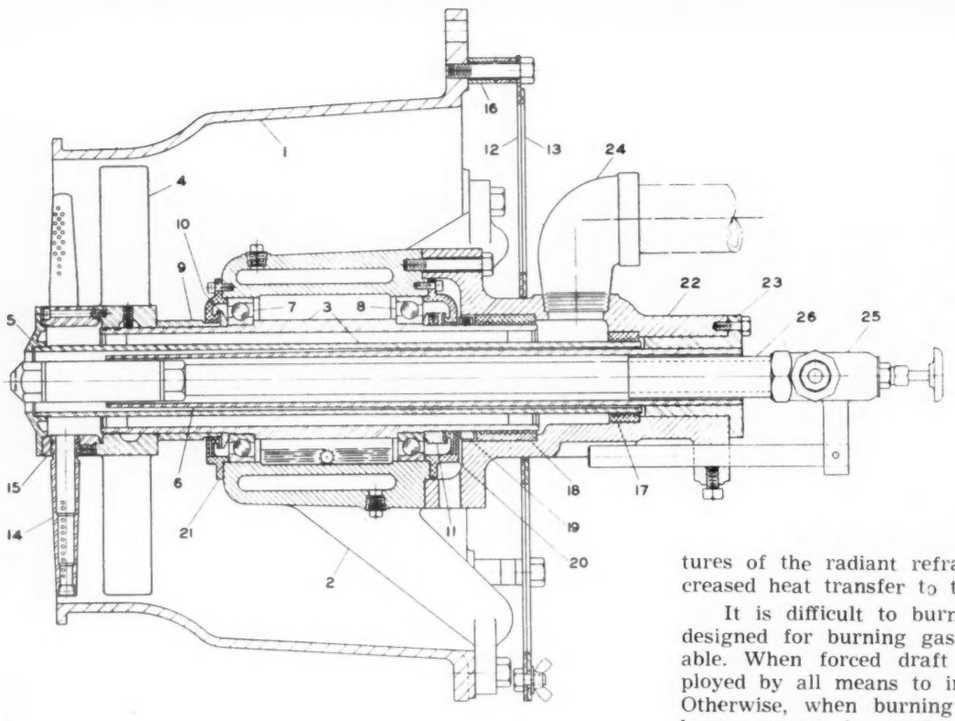


In the combination gas and oil burners the oil gun is inserted through the center of the revolving shaft as shown here. Steam is used to propel the fan when oil is used as fuel

as a reaction turbine and the angle of drilling, distance away from the center, and areas of the orifices are the determining factors for the power developed.

A burner of the fanmix type 21 inches in diameter has a capacity of 55,000,000 B.t.u's. release per hour with natural gas of 1000 B.t.u. heating value. The fact that the gas orifices emit gas transverse the air stream and are also revolving at a rate of speed in proportion to the gas pressure and flow, precludes admission of stratified air and gas stream entering the furnace. This meets the requirements of the ideal burner described by Bunsen and assures that the highest speed of combustion will be secured. These burners when operating in the open atmosphere in daylight show no visible flame. There is no fan action in the furnace since the rapid expansion caused by the high temperature of combustion kills the forward direction of the air-gas stream. When torch action is desired in huge furnaces, a special tile is used to force this to occur, as it does with the regular premix types. When secondary combustion is required, the shutters of the burner are closed to preload the fan and prevent the proper air-gas ratio from existing and the secondary air supplied through other openings.

Burner Design Fitted to Service

It is necessary for the manufacturer to know not only the B.t.u. value of the gas but also the service required and the gas pressure available. With these data the air-gas ratio is established together with the capacity of the burner. With this information the burner drilling can be established to meet the requirements by definite engineering formulas.

Performance on various applications of these burners show that complete combustion is secured without any danger of incomplete combustion with less than 5% excess air present in the flue gases leaving the furnace. Furnace temperatures are higher on the walls and floors than other burners where forced draft equipment is not provided. In a number of installations the heat input has been increased as much as 40% without increased temperature of flue gases. This is attributed to the reduction in excess air together with the increased radiation from the combustion gases and the higher temperatures of the radiant refractory surfaces, resulting in increased heat transfer to the radiant tube surfaces.

It is difficult to burn oil economically in a furnace designed for burning gas with only natural draft available. When forced draft is available it should be employed by all means to increase the rate of combustion. Otherwise, when burning oil nothing like the heat release rate can be reached because of the long flame of oil combustion. Although oil burns with a luminous flame which has a higher emission value of radiant heat than does the non-luminous gas flame, the flame is in itself opaque and will result in lower re-radiation from the refractory surfaces when the angle of radiation from the refractory strikes the oil flame.

In oil burner design, the trend has also been towards a short flame of high temperature. In most burners of the combination type the design of the air register again is the governing factor to propel the air into the oil combustion zone. Unless some such feature is employed, combination oil and gas burning is not equally satisfactory on furnaces. In the fanmix type burner, of the combination type, the oil gun is inserted through the center of the revolving shaft, as shown in the accompanying drawing. Steam is then used to propel the fan instead of gas and this furnishes forced draft and brings about quick combustion of the vaporized oil, resulting in a very short flame. This allows a furnace to have as high a capacity on oil in B.t.u. input per hour as on gas, without flame impingement. It is not necessary with this type burner to cause all of the air to go through the burner in forced draft and some may be admitted through openings below the burner in the wall in which the burner is mounted. This reduces the amount of steam required to drive the fan. Other satisfactory installations have been made by mounting the oil burners over the regular fanmix burner in separate openings so the atomized spray of oil is injected into the furnace at a downward angle to intersect the air stream of the fanmix burner, created by propelling the burner with steam, at a point about four or five feet in front of the wall of the furnace.

For most economical operation of any combination of gas and oil burner, forced draft by electric motor driven fans or steam turbine driven fans, when the latent heat of the exhaust steam is recovered, should be given a survey and engineering economics used to determine if these means should be employed.

Some designers of furnace equipment are now designing their furnaces to meet the performance of the burners they supply. Also, some of the gas burner manufacturers are paying more attention to the engineering of burners to meet the conditions of the furnaces. These two, co-ordinating together, can render the industry an invaluable service. No burner should be condemned if it is improperly engineered to the job, nor should a furnace be condemned if improperly supplied with products of combustion.

The Following Pages are Dedicated

To Aid the MOTIVATING FORCES Of America's Oil Marketing . . .

The oil industry's annual sales drive is now on to help 30,000,000 motorists and truckers plow through winter's snow and sleet without falter of engine, freezing of bearing, axle, transmission or radiator and without skidding tires or dying batteries.

The responsibility for this service to the American Car Owners lies with the MANAGEMENT of the industry's oil marketing division, the men whose daily job it is to see that "things are actually done."

On these men—the motivating forces of oil marketing—now rests the carrying out of the extensive and well financed plans of advertising and merchandising that the industry has been making the past few months in order to SELL a $210,000,000 market with profit.

To the greater success of this year's BIGGEST Winter Change-Over Campaign, NATIONAL PETROLEUM NEWS offers the following pages.

Warren C. Platt

OIL INDUSTRY DRIVES FOR $210,000,000 WINTER CHANGE-OVER MARKET

NOW Is The Time to Drive For Oil's Biggest Winter Change-Over Market

The biggest Winter Change-Over market for the oil industry is this month awaiting every man in oil marketing.

The preliminaries have been completed; the advertising has been spread from coast to coast; sales organizations have been coached and urged to their greatest endeavor; stocks of oils and accessories are at all stations—or should be; and above all—

Winter is already here in many parts of the country, winter with its snows and below-freezing weather. The last days of October saw the end of the unusually warm weather in the middle west and real winter storms came to help the oil industry's sales program.

Today begins the actual selling. Today is started the sales effort on every pump island, that finally moves the goods to the oil industry's profit.

To give this nation-wide sales effort its final shove to better profits, NATIONAL PETROLEUM NEWS herewith presents its Winter Change-Over number. For its next four issues "NPN" will further aid this sales campaign with facts and figures to help every man who is responsible for the drive.

Here is the size of the Winter Change-Over Market for 1939-40—

More than $210,000,000 of oil company services and oil products will be needed by the 30,000,000 cars and trucks to make them safe for winter driving;

In addition $345,000,000 of tires, batteries and other automotive accessories will be bought by motorists this winter and most of this can be sold as a part of the Winter Change-Over and Winter Protection campaign;

Total sales for this Winter, that await the efforts of oil marketing men, amount to more than $500,000,000—a half billion dollars. This is exclusive of gasoline and ordinary lubricating oil sales.

Helping to Build the 1939 Change-Over market to the above and possibly larger figures are these factors:

1—More cars on the road than a year ago and this number increasing as times pick up and workers go back to their jobs and start driving their cars again.

2—More driving this past summer, as indicated by "gas" consumption, which means more cars in need today of winter conditioning.

3—Bumper crops and better prices in many farming sections, which means farmers will spend more for winter conditioning their automobiles.

4—More calling to the public's attention than ever before of the need for Change-Over service for its cars.

On this last point, oil companies, tire and battery and spark plug manufacturers, among others, this fall and winter are carrying on the largest advertising campaigns they have ever made, to make every motorist in the country conscious of the need for the oil companies' Change-Over service.

By radio, on billboards, in newspapers and magazines, these companies are pointing to the greater comfort, convenience and safety to the car owner if his automobile is given the necessary services and is properly equipped for winter driving.

This tremendous campaign to make the public conscious of the Winter Change-Over will work up to its peak this month, when oil companies are making their biggest drive to bring cars into their stations for winter conditioning.

One company will spend $24,000 in advertising in November to promote Change-Over servicing. It is spending $38,000 all told for this purpose this fall and winter. Another company tells NATIONAL PETROLEUM NEWS its present campaign is the biggest in its history.

One large oil company selling its products nation-wide says it will have an extensive consumer advertising program in magazines, newspapers and other mediums in November and December.

The $210,000,000 market for strictly Change-Over products and services referred to above includes $107,500,000 for the minimum requirements needed to put 25,000,000 cars in shape for winter driving. These essentials are crankcase, transmission and differential drain, flush and refill and a chassis lubrication.

Added to this is a market of $103,500,000 for various services and products which naturally tie into a Win-

ter Change-Over campaign. These include radiator cleaning and flushing; alcohol or anti-freeze; cleaning air filters and front wheel bearing lubrication.

Topping both these market potentials but requiring more creative sales effort is the promise of a demand for approximately $344,000,000 worth of automotive accessories. This figure is based on quotas per 1000 gallons of gasoline sales, now accepted by many marketers as a gauge of their selling efficiency, and upon the indicated consumption of gasoline during the fall and winter months of 1939.

Size of the market for those services and products which are so closely associated with the Winter Change-Over market but which are not usually grouped among the minimum essentials, is indicated by the following table:

1. Radiator cleaning and flushing	$ 18,500,000
2. Alcohol or anti-freeze	54,000,000
3. Cleaning air filters	6,000,000
4. Front wheel bearing lubrication	25,000,000
Total market	$103,500,000

An estimate of the potential demand for the large group of automotive accessories, sale of which hinges to a large part on close inspection of customer needs while the car is in for the winter conditioning check-up, is indicated by the following table:

New tires	$138,000,000
New tubes	34,500,000
Batteries	28,800,000
Spark plugs	27,600,000
Oil filters	30,700,000
Light bulbs	11,500,000
Wiper blades and arms	12,400,000
Fan belts	9,600,000
Battery cables	7,700,000
Miscellaneous accessories and services (heaters, radios, battery recharging, tire repair)	44,100,000
Total Potential market	$344,000,000

The above market is based on quotas used by many marketers in determining the effectiveness of their overall selling efforts, and upon indications that not less than 7,765,500,000 gallons of gasoline will be consumed by automotive equipment in the four fall and winter months of 1939—based on corresponding gallonage for the same period in 1938 plus an indicated increase of 5 per cent.

Talk November's Snow To Sell Change-Overs To Dilatory Motorists

MR. OIL MARKETER, now that November is here the Winter Change-Over will hit full stride in most parts of the country. Based on records of November weather the past 50 years from the Weather Bureau, your customers have been flirting with the danger of frozen radiators, starting failure, difficult gear shifting, because unseasonably warm weather over wide areas has not brought home to them the necessity of Winterizing.

"Everybody talks about the weather, but nobody does anything about it." In that remark credited to Mark Twain is the challenge to all oil marketers to "talk about the weather, and to do something about it"; to sell winter conditioning of the automobile, and to sell it early before a sudden drop of temperatures results in a rush of winter business that taxes the capacity of many stations.

While in accompanying articles, NPN tells oil marketers how they can sell various items of accessories in connection with winter conditioning, the Change-Over itself can and should be sold early. One of the most logical approaches which the marketer has is to point to weather conditions in other sections of the country in telling his customers to have their work completed before a sudden drop catches them unprepared.

The oil marketer or person in charge of the success of the Change-Over program, can make a good sales story out of weather conditions elsewhere so far this year to push his sales of winter conditioning, despite the fact that unseasonably mild weather through October resulted in many motorists delaying bringing their cars into the station for this service. He can watch newspapers and through the radio and weather bureau get reports on weather conditions to pass on to the station salesmen to be used in soliciting this business.

The station salesman can point out that a quick freeze, with heavy snow in northern Michigan and lighter snow and sleet spread over parts of Wisconsin, Iowa, Michigan, northern Illinois and Ohio late Oct. 27 and 28, according to reports from the Weather Bureau. Some sections of New England and at Williston, N. D., temperatures have been as low as 12 degrees, while at Des Moines, Ia., it has been down to 17. Snows have been encountered also in parts of Oregon, New Hampshire, Arizona and Utah, with freezing weather also noted in Idaho and Pennsylvania.

The accompanying table shows at a glance why November is the time for the marketer to intensify his selling of the Change-Over, despite the fact that temporary warm weather might hold it back. Of the 30 cities shown in the table, which represent a cross section of the country, 17 have had all-time low temperatures in November ranging from two to 29 degrees below zero, the Weather Bureau reports. Eleven of these cities have an all-time

low of 10 below zero or colder for November.

Eighteen of the 30 had mean minimum temperatures averaging below freezing in these records which go back some 40 to 60 years; and which represent a true picture of what weather can be expected during November.

Average temperatures, average low temperatures and lowest November temperature for principal marketing points taken from records of the U. S. Weather Bureau are:

	All time low	Mean temp.	Mean minimum
Boise, Ida.	15	41	27
Boston	—2	42	35
Buffalo	2	39	34
Cheyenne, Wyo.	—21	35	23
Chicago	—2	41	33
Cleveland	0	41	32
Columbus, Ohio	—5	32	34
Davenport, Iowa	—10	39	31
Des Moines	—10	38	30
Detroit	0	39	30
Duluth, Minn.	—29	30	23
Erie, Pa.	6	41	36
Dodge City, Kans.	—13	42	..
Indianapolis	—5	42	30
Escanaba, Mich.	—9	33	27
Grand Rapids, Mich.	6	38	31
Helena, Mont.	—22	33	25
Huron, S. D.	—28	32	21
La Crosse, Wis.	—21	35	28
Lansing, Michigan	—4	38	29
Madison, Wis.	—14	35	28
New Haven, Conn.	2	42	35
New York	..	44	37
Portland, Ore.	11	47	41
Rochester, N. Y.	1	39	33
St. Louis	3	45	33
Sault Ste. Marie, Mich.	—12	32	27
Springfield, Ill.	0	42	34
Toledo, Ohio.	2	40	34
Omaha, Neb.	—14	39	29

Using the weather in other sections to call attention to the danger of freeze-ups or stalls can be made one of the oil marketers' most useful tools in selling Winter Change-Over, and can help to iron out the peak of this business, which will probably come with a decided drop in temperatures.

In short, pithy paragraphs on a station bulletin board, or in conversations with customers, the salesman can emphasize the approach of cold weather by citing conditions in other sections. He can use prevailing warm weather to lead into the selling the Change-Over. Advantage of this could be taken especially where a customer may remark about the "warm weather." The employe could follow such a remark with a sales talk which might run somewhat as follows:

"Yes, Mr. Smith, it certainly is unusual weather, but I noticed where Rochester had a blizzard, with temperatures down near zero. That will probably happen around here one of these days soon, and if you'll leave your car here we can prepare it for winter driving and give you much better service than we can when the temperature quickly drops below freezing and everyone else will be clamoring for service."

The motorist who remembers trying to get his car started on cold mornings with the slow, labored turning over of the engine because of the heavy oil in the crankcase, or the one that remembers last year when he could not get the car in gear before exhausting his supply of choice expletives which accompany this effort, are good prospects for the Winter Change-Over.

Last Minute PUNCHES

To Put the Extra Profit

In This Year's Change-Over Campaigns

THE 1939-40 WINTER CHANGE*-OVER SALES Campaign is now ALL SET.

The advertising is running in the magazines and newspapers.

The story has been told in detail by marketers, managers, promotion men, sales managers and all the rest of the selling army. The men in the front line trenches—at the pump islands—have heard this story. They are at their posts at the pump islands.

Now just what is going to happen?

It was weeks or even months ago that many of this pump island army heard the "last instructions" and were exposed to the radiant enthusiasm of the MANAGERS of this sales campaign.

Here, in the opinion of various sales experts, is what each MANAGER should do this morning, on receipt of this special WINTER CHANGE-OVER Issue of NATIONAL PETROLEUM NEWS, to insure that all the preparations have not gone for naught, that they will be carried out when the campaign hits full stride in November.

These sales experts say it is now up to OIL MARKETING MANAGEMENT to see that the campaign is a success. That MANAGEMENT consists of

Every oil marketer
Every oil marketer's manager
Every oil company manager
Every oil company commission agent
EVERY MAN WHO HAS THE RESPONSIBILITY of MOTIVATING the business, of seeing that management plants work.

Here is what these sales experts say each of these MOTIVATING FORCES, these directors of sales effort, should do right now—

IN GENERAL—

1—Watch the weather reports as far ahead as possible, to see if colder weather or storms are coming which might be used in his sales talk.

2—Arrange to notify all supervisors and advise all stations as soon as possible when a storm or cold snap is announced, so they can sell anti-freeze and oil changes to customers.

3—Set the dates in November when his Change-Over campaign is to be brought to a head. Many companies do not publicly announce any set date for their campaign; but they do try to pick just the "right" time in November to put a special drive into their Change-Over sales campaign, to bring in customers who have turned down earlier sales appeals.

4—Arrange the marketer's and manager's own working schedule so that he can give as much of his own time as possible to personal supervision of his company's Change-Over sales drive. This market is created by sales direction and sales effort and it is largely up to the marketer, or the oil company marketing executive, to supply the driving force.

AT HIS OFFICE

1—Check stocks of winter lubricants and automotive merchandise and make sure that necessary supplies have been distributed to the stations and that ample supplies are still on hand in his own warehouse.

2—Check his direct mail system, to see that all his prospects have had a sales message on his Change-Over campaign and to arrange for follow-ups by telephone or letter where there has been no response.

3—Check his advertising plans and make sure that a warning message to motorists by radio or in newspaper copy can be gotten out in advance of a storm or cold snap.

4—See that banners and advertising supplies and sales promotion bulletins have gone out on schedule.

5—Check over the daily working schedule of his salesmen, to make sure they will be available for helping in the Change-Over campaign.

6—Check the stations' quotas, to see that they are properly arranged and based on the latest sales figures the marketer has available.

7—If a sales contest is being held, review the plans to see that all preliminary arrangements have been made and that the men at the stations are familiar with the rules.

8—Check to see that extra help is available for his own stations, if needed, due to extra work or illness in the regular staff.

AT EACH STATION

1—Inspect the rest room and toilets for sanitation and cleanliness. See that the station men understand the importance of keeping the rest room clean at all times during the Change-Over campaign.

2—Inspect the station exterior, drives and grounds for general clean-

For tractors, too

Based upon specifications and advice from tractor engineers and sales representatives, there is a uniform movement to recommend the use of higher octane motor fuels, due to the favorable reception being given higher compression motors for driving tractors
—W T ZIEGENHAIN in *Oil and Gas Journal*

Dubbscracking is the way to make high octane gasoline—from any charging stock—and at lowest cost—royalty and all

And now the tractors want it, too

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

liness and good housekeeping and to see that the drives are free of unnecessary cars.

3—If the Change-Over campaign has started, check to see that the banners are up and that none are disfigured or torn and should be replaced. See that other advertising signs are in the proper place.

4—Check to see that the station displays are fresh and attractive and in keeping with the Change-Over campaign.

5—Inspect the lubritorium for cleanliness and to see whether it has the full complement of tools and that stocks and tools are in place.

6—Check particularly the pressure guns, lift and hand guns, to make sure they are in working order and that spare parts are available for the pressure guns.

7—Check the air compressor, which will have to carry an extra load during the Change-Over campaign; make sure it is properly oiled and the water has been drained from the air chamber and that the relief valve is working.

8—Make sure that winter lubricating stocks in all the necessary grades are in place.

9—Check stocks of automotive supplies on hand, to make sure that those that are to be pushed as part of the Change-Over campaign are on hand and others are out of the way.

10—Make sure ample rest room supplies are on hand, soap, towels and paper.

11—Check the station personnel, to make sure that the full force will be on duty as scheduled.

12—Check to see that clean uniforms will be on hand during the Change-Over campaign.

13—Make sure arrangements have been made by the dealer or station lessee for extra help at the station, if needed, during the height of the Change-Over campaign.

14—MOST IMPORTANT OF ALL—Gauge the enthusiasm of your own salesmen, your own stations and lessee and dealer station crews TODAY for the Change-Over campaign, bearing in mind that the work of selling the men themselves and preparing them for the campaign was done some time ago. If necessary, arrange special meetings where the men can be brought late in the evening, to tell them of the profit possibilities for themselves in a successful Change-Over campaign. The slogan for every man jack should be:

"Sell a Winter Change-Over to EVERY customer that comes on the station lot"

Sell Quality Oils At Premium Prices For Better Profits

Says the Aggressive Oil Sales Manager

Don't just sell any oil or grease for the Winter Change-Over, sell QUALITY at a QUALITY PRICE.

If a station operator has got his SALES EFFORT up to the point where he actually SELLS a motorist a COMPLETE Change-Over, then that station operator can add a bit more steam and SELL the motorist Quality at a Quality Price.

Sell Premium Quality as they are none too good for the demands of cold weather driving, and for the few extra cents the customer will get many MORE MILES OF SATISFACTION.

Selling quality products in Change-Over servicing adds to the profit of the oil company and the station but increases the cost to the customer by only a relatively small proportion of his bill where any amount of servicing is involved.

The customer gains through the knowledge he is using the best lubricants for the protection of his car at an almost infinitesimal cost compared with the automotive investment they protect.

The cost to the motorist of the bare necessities in winter conditioning, flushing the crankcase and changing the oil, flushing the differential and transmission and changing the lubricant and greasing the car would figure to $5.30 if premium oil and gear lubricant were used. This would include a 35-cent motor oil and gear lubricant selling for 35 cents a pint. Some stations sell the new type gear lubricants for 40 cents a pint. The chassis lubrication job would bring $1.

If a 20-cent motor oil were used and a 20-cent gear lubricant—and both oil and gear lubricant are sometimes sold for less than this—and a 75-cent grease job were bought, the motorist would pay $3.55 for the Change-Over service. As additional items calling for service were included in the winter conditioning, the difference in the prices of the lubricants would be relatively less compared to the cost of the whole job.

On a premium motor oil used in the Change-Over servicing, the station would make a gross profit of about 17 cents a quart, taking average figures, or a total of 85 cents on five quarts. On the 20-cent oil the station would make about 13 cents a quart, or a total of 65 cents.

If the 35-cent gear lubricant were used, the gross profit to the station would be about 18 or 19 cents a pint, figured on the cost of the new types of gear lubricants in drums to stations in the vicinity of Chicago, a gross profit of 90 cents. On a gear lubricant selling to the motorist at 20 cents, the station might make 14 cents a pint, a gross profit of 70 cents.

On anti-freeze the additional gross profit to the station in selling the permanent type is 50 cents a gallon, as compared with the alcohol compounds. The permanent type sells for $2.65 a gallon and has a gross profit for the dealer of 90 cents, while the alcohol compounds sell for 90 cents to $1 and have a profit for the dealer of 40 cents.

On tires, batteries and some other automotive items, the margin to the station is a relatively larger proportion of the retail price where quality products are sold than on the low priced merchandise, which makes the gross profit to the station go up rapidly with the quality item. On the lower price lines also, competition often cuts the station's margin below the recognized margin. On some lines of tires, for example, competition cuts the station's margin to $1, about 15 per cent of the retail price, while on a quality tire selling for $18, the station may make 40 per cent if it receives the full discount.

Oil companies which are progressive merchandisers of automotive goods, teach their station men to sell on the service that they give with the purchase of the item. The tire or battery, or windshield wiper is installed and serviced while in operation in the car; while the same item purchased at the cut price automotive supply house has to be installed by the owner or he has to pay some garage for the installation.

Clean Rest Rooms Are Necessary

Clean and sanitary rest rooms and toilets play an important part in oil companies' Winter Change-Over campaigns for two reasons, oil marketers state.

The first is that regular customers of the station, while their cars are being winter conditioned, may have about their only need during the entire year to use the station's rest rooms and their impression of the good housekeeping at the station may be founded on the condition in which they find the rest room on this one visit.

One oil company says it particularly values compliments from its patrons on its rest rooms during the Change-Over campaigns, because it knows the station men are hard pressed to find the time to give these facilities the

extra attention needed and, if the rest rooms are clean at this time, they are likely to be that way during other months. This company sends bulletins to its station managers and lessees pointing out the need for clean rest rooms during the Change-Over selling.

The second reason for sanitary toilets this year is the fact that the public is being more frequently directed by public health authorities to avoid unsanitary toilets, and oil companies the past year or so have stressed the clean rest rooms and toilets at their stations. A patron is more discriminating as regards station rest rooms now than ever in the past.

Extra Profits In PLUS Sales In Change-Over

Many are the profit possibilities for the oil marketing company and its stations from Winter Change-Over servicing, aside from selling the motorist the bare necessities to safeguard his car in winter driving.

Also, the margin for profit on many of the items that could be included with good salesmanship in a complete Change-Over is relatively greater than on the necessity items, and servicing and installation charges add to the station's profits.

The market for the necessities of Winter Change-Over has been estimated at $4.30 average for each car. This includes five quarts of 25-cent motor oil, $1.25; two gallons of flushing oil, for the crankcase and the transmission and differential, 80 cents; five pints of 25-cent gear oil, $1.25; a chassis lubrication at $1. The gross profit for the station on these sales would be $2.30.

Next to this minimum winter conditioning servicing, in importance to the motorist, is cleaning and flushing the radiator, checking for swollen hose connections and replacing them, replacing the fan belt if it is worn and slipping, and selling anti-freeze to protect the radiator from freezing.

Cleaning and flushing brings 75 cents average service charge at the station, of which 30 cents is profit. The sale of one gallon of an alcohol anti-freeze compound at 90 cents to $1, means 40 cents profit to the station and from the sale of one gallon of permanent anti-freeze at $2.65, the profit is 90 cents.

This complete radiator service means an additional profit to the station of 70 cents or $1.20, depending on what type of anti-freeze is sold. If a section of hose were replaced, or a new fan belt put on, this profit for the station would be added to by from 25 to 50 cents. Taking the minimum estimates in the above two cases, the gross profit to the station would be increased by 95 cents on top of the $2.30 profit from the servicing with winter lubricants discussed above, a total gross profit of $3.25.

Battery sales can be made an important part of the Change-Over program, if this equipment is checked when the car is on the lift for other servicing. One battery manufacturer's survey showed that only seven per cent of sales to replace weak batteries were made as a result of the service man calling the car owner's attention to the condition of his battery. Leaving the door wide open for sales by the alert station man who inspects the battery as part of Change-Over servicing.

Battery manufacturers estimate that at least one out of every three cars in the station's neighborhood is a prospect for a new battery this fall. Where a battery sale is made as part of the Change-Over program, it means an average of $3 gross profit to the station, and an additional 20 cents profit, if one battery cable is sold with each battery. The total gross profit to the station, where the battery and cable sale is included with the Change-Over thus becomes $6.45.

One car out of six on the road is estimated a prospect for a car heater this winter. What more logical time for the sale than when that car is being made ready generally for safety and comfort in winter driving. At an average price of $15, including installation, the gross profit to the station can be taken as $5, making a possible $11.45 gross for the station from the Change-Over sales.

Some alert station salesmen will seize the opportunity while the customer's car is on the lift for Change-Over servicing, to sell a replacement tire, thus adding at least $2.50 to the station's gross profit, and making the total possible gross profit $13.95.

Some alert station salesmen will be coached by oil marketers, in this Change-Over campaign to watch for sales opportunities for spark plugs, lamp bulbs, wiper blades (including the chemically treated ones for sleet storms) and oil filters, among other items. Gross profits on sales of only some of these items could easily add another 50 cents to the station's gross margin, bringing the total profit possibility for Change-Over for one car to $14.45, without by any means exhausting the sales possibilities in connection with the Change-Over campaign.

Auto Engineers Advocate Frequent Winter Changes

Automobile engineers seem to be getting more fearful of the ill effects of Winter Driving. For their 1940 cars they are recommending in some cases more frequent oil changes than in the more recent years. All engineers are cautioning to change frequently for "severe driving" or when car is driven under "adverse driving conditions."

Here is what the User's Guide for the Pontiac Cars of General Motors line says of Winter Driving for their 1940 models:

"Short runs in cold weather, such as city driving, do not permit thorough warming up of the engine and water may accumulate in crankcase from condensation of moisture produced by burning of fuel. Water, in the crankcase, may freeze and interfere with proper oil circulation. It also promotes rusting and may cause clogging of oil screens and passages. Under normal driving conditions this water is removed by crankcase ventilator but if water accumulates it should be removed by draining crankcase as frequently as may be required.

"During winter months light or low viscosity oils are required to obtain easy starting. Therefore, at the beginning of winter season the crankcase should be drained and refilled with oil of proper viscosity for winter use. On continuous hard driving, these light oils may thicken and cause starting trouble. More frequent oil changes may therefore be required during winter months. A drainage period of 2000 miles maximum for cars subjected to high-speed driving conditions may be desirable and under very severe conditions more frequent draining may be required to prevent starting troubles due to thickened oil.

"It is always advisable to drain crankcase after engine has reached normal operating temperature. The benefit of draining is, to a large extent, lost if the crankcase is drained when the engine is cold as some of the suspended foreign matter will cling to the sides of oil pan and will not drain out readily with slower moving oil."

Although Nash recommends change of crankcase oil at 2000 miles under average driving conditions, it tells owners: "If car is operated in low temperatures, with frequent stops and starts, it is advisable to change oil every 1000 miles.

It is indicative of the need for more frequent crankcase changes under adverse driving conditions—for which there is no definite yardstick—that some oil marketers—are using mechanical or color comparisons for showing the presence of water, lead, abrasive materials, dust, gasoline dilution or other impurities in the motor oil. It appears evident that today's driving is often more "adverse" than many car owners believe and any practical test which would show this should boost the sale of motor oils.

Check-List of Station Stocks for Complete Winter Change-Over Selling

Below are the various grades of lubricants and accessory items which every station participating in full in this year's Winter Change-Over campaign should have on hand.

These items should be in each station in sufficient quantities to take care of at least ten days' sales. Reserve stocks should be on hand in the bulk station warehouse, or at some convenient point, so there will be no delay in serving customers through stocks at the station running low.

MOTOR OILS ☐

SAE No. 10W, in the premium and other lines the station carries.
SAE No. 20W, in the premium and all other lines.

OTHER LUBRICANTS ☐

Winter gear lubricant.
Winter hypoid gear lubricant.
Chassis lubricant.
Water pump lubricant.
Steering gear lubricant.
Wheel bearing lubricant.
Spring lubricant.
Some stations also carry a rubber shackle lubricant, cup grease and graphite.

BATTERIES ☐

13-plate
15-plate
17-plate
Some stations carry the higher priced 17 and 19-plate batteries for the larger cars. The three listed take care of the needs of 85 to 90 per cent of cars coming into the station.

BATTERY CABLES ☐

Twelve to 15 sizes of cables are carried by most stations, a stock of 18 cables allowing two to be carried in the following popular sizes in inches: 7.25, 10.75, 13.75, 22.25, and 26.50.

TIRES AND TUBES ☐

Four-ply casings in sizes: 550-16, 525-17, 550-17, 600-16, 650-16.
The last three sizes will cover 80 per cent of the market, and of a stock of 14 or 15 casings many stations carry, six would be of the 600-16 size.
Lower price tires for older cars are carried in these sizes: four of the 600-16 size; two of 450-21; three of 500-19 and two of 550-17.
Corresponding stocks of inner tubes.

SPARK PLUGS ☐

Six sizes will cover the needs of 90 per cent of cars on the road, the sizes vary in number with the individual manufacturer.

FAN BELTS ☐

Ten sizes will cover 85 per cent of the cars. Sizes are listed differently by different manufacturers.

RADIATOR HOSE ☐

Four sizes, ranging from 1.25 to 2 inches in diameter will take care of 90 per cent of cars. Some of the late model cars call for a moulded radiator hose of hard rubber, for which there is as yet little demand but will be in later years.

LAMP BULBS ☐

Eight sizes will take care of the needs of headlights, taillights, dash lights. No demand at service stations for the new sealed beam headlights is anticipated for several months.

WIPER BLADES AND ARMS ☐

Two sizes of blades and arms give coverage of most makes of cars.

CHEMICALLY TREATED WIPER BLADES ☐

One type serves all needs, they sell for from 35 to 60 cents put on the wiper arm in place of the regular rubber-edged blade.

RADIATOR CLEANING COMPOUND AND SOLDER ☐

These are put in the car by the station man, the service charge including the cost of the material.

ANTI-FREEZE ☐

Ethylene-glycol permanent anti-freeze.
Alcohol anti-freeze compounds which have to be replenished.

OIL FILTERS ☐

Two sizes will meet the needs of most cars, some manufacturers have three or four sizes. More important for the motorist's protection to sell in the winter than in the summer.

CAR HEATERS ☐

Three types are carried by some stations; a quality brand, a price brand and a special heater designed for Fords. They will range in price from $10 to $17, with an additional installation charge of from $2 to $5, depending on whether a defroster and thermostat is included and the amount of work required for the installation.

RADIOS ☐

A wide range is open to the station both in price and models. Average price is said to be around $20, with aerial extra and also plus an installation charge ranging from $3 to $3.50.

FOG LAMPS ☐

One size only need be carried, the price varying with the make, from around $4 upwards.

SIDE VIEW MIRRORS ☐

One size only, selling for around $1.70.

GRILL GUARDS ☐

One size will give good coverage among all makes and models of cars, the price ranging around $5, with the installation included.

AUTO POLISH, WAX, POLISHING CLOTHS ☐

A small number of each of the three items should be kept in stock, each selling at 25 cents at many stations.

FACT Stories

Of Profit Selling to this $210,000,000 Market

Marketers Give Actual Sales-Ideas They Have Used in Selling Winter-Change-Over

● Independent oil marketers, in past years, have increased their business through their Winter Change-Over campaigns an average of 28 per cent, they tell NATIONAL PETROLEUM NEWS.

This figure is based on reports of sales for the first month after their Change-Over campaigns started, received from representative marketers in many parts of the country where early cold winters make some Change-Over servicing on cars necessary.

These marketers, who have successfully carried on winter conditioning programs for several years, contributed their experiences to aid NATIONAL PETROLEUM NEWS in its campaign to make this fall and Winter's Change-Over business of marketing companies the largest in history.

They said that much larger increases in business than they reported for past years, were possible, if the campaigns are vigorously pushed by more oil marketing companies and the public's consciousness is thus further awakened to the need for conditioning its cars for cold weather driving.

These marketers' reports showed that increased business from the Change-Over campaigns comes from several sources, in addition to the sales of crankcase oil and transmission and differential lubricants, which are the petroleum necessities of the campaigns. Business gains come also from the sale of lubrication jobs, batteries, tires, anti-freeze and automobile accessories.

Here are the averages of business increased on various items, as reported to NPN by these oil marketers, for the first month after their Change-Over campaigns started:

Item	Per cent Increase
Gasoline	6.0
Motor oil	25.5
Grease jobs	31.5
Battery sales	21.1
Tire sales	21.0
Anti-freeze	65.0
Other accessories	25.6

MOTORISTS WARNED ABOUT COLD SNAPS

Wisconsin's quick cold snaps are warned against by a marketer in that state who starts his direct-mail Winter Change-Over campaign so early that customers ask him why the hurry.

"Before your cars are frozen and possibly broken by a quick cold snap," W. A. Porter, Jr., Porter Oil Co., Spooner, Wis., tells them. "It is much easier and more economical to start early."

This marketer, because it aims to start earlier than its competitors, cautiously pushes only such winter protection items as do not "boil off," Mr. Porter says, "should a warm day come along."

FLAT PRICE FOR CHANGE-OVER BEST SALES GETTER

Several marketers take a tip from our transportation and travel agencies who have amply demonstrated the appeal and success of one all-inclusive rate, and quote a flat price for their complete Winter Change-Over service and products.

G. L. Savory, Savory Oil Co., Binghamton, N. Y. declares this his most effective single sales idea. He advertises a flat price and in addition, calls attention, in large type, to the amount the customer saves in cash when he buys the complete Change-Over.

Likewise, M. H. Williams, owner, Williams Oil Co., Inc., Whiteland, Ind., says:

"We sell the complete Change-Over by cash or on payment plan, as we operate budget departments in our stations. We get our card file, place all cards in the prospect file for Change-Over, and solicit them until we get them all. We check spark plugs, batteries and all necessary fall and winter items, in addition to the Change-Over, and make a special price not to exceed five per cent discount off the total price."

LUBE JOBS UP 20 TO 35% BY NEVER RELAXING

Increases of 35 per cent for one marketer and 20 per cent for another in Winter Change-Over lube oil and grease jobs were reported by two marketers who never relax, they tell NATIONAL PETROLEUM NEWS, until every car in their neighborhood has been promised for a Change-Over, either to themselves or to some one else — the point being that they consider every car a "must" for this service.

One is the Williams Oil Co., Inc., Whiteland, Ind. M. H. Williams, owner, says: "Our first school for dealers starts Sept. 15. We explain to them how to sell the complete Change-Over. Our campaign lasts until we solicit every car in our neighborhood and find out if his car has been serviced.

The other is Paramount-Pingree Oil Co., Salt Lake City. A. H. Ehler, president, writes: "In each service station we have set up a prospect and customer file, which we call our 'Profit Booster.' We have our service station men contact every automobile owner within three or four blocks of his station."

SENSE OF TOUCH USED AS SELLING FORCE

Department store merchants, who risk spoilage of fragile goods where countless hands may touch or handle them, know that to feel or handle a product is to experience and desire possession.

Several marketers appeal through this sense of touch to sell motor oil. On the pump island two of them place an ordinary egg beater and two jars of oil, one of summer and one of winter transmission. The customer is permitted or asked to turn the beater himself to observe "the

extra labor involved in colder weather," says L. J. Homant, Homant Bros. Oil Co., Alpena, Mich., who uses this means of selling. The other marketer using this method is Williams Oil Co., Inc., Whiteland, Ind. Still another, Porter Oil Co., Spooner, Wis., displays two bottles of motor oil "where customers may handle them," W. A. Porter, Jr. says, "and readily see that a cold pour test oil is beneficial to their motors."

CUSTOMERS RESPOND TO GASOLINE SLOGAN

What it describes as a "honey" of a slogan was furnished Tyler Tire & Service Co., South Bend, Ind. last year by its gasoline supplier.

Gasoline banners carried this message: "It Starts Just Like That." Customers quickly responded to the action in the slogan and "were snapping their fingers," H. E. Woodard, company member says, to indicate "like our gasoline starts."

Tyler's most profitable puller, however, was the story on the grease it handled. High point of it was that the grease did not emulsify in water, "thus preventing frozen shackles and worn parts."

AUTO HEATERS LEAD WINTER PUSH, JOBBERS REPORT

Among the automotive equipment and accessories handled by jobbers during their winter Change-Over campaigns, auto heaters are pushed by 60 per cent, batteries by 40 per cent, and tires by 35 per cent of those who reported to NPN. Other items sold aggressively during the winter are: anti-freeze, headlight bulbs, cables, defrosters, fans, heater and radiator hose, other heater aids, radiator cleaner, cement and radiator covers, oil filters, mufflers, snow and mud tires, stop leaks, skid chains, spark plugs, tail pipes, thermostats, valve caps, wiper blades, waxes and polishes.

Good sales promotion help from tire, battery and accessory suppliers was reported received by 45 per cent of the jobbers. Fifteen per cent reported receiving "some", 15 per cent made no report and 15 per cent did not handle. Seven per cent reported receiving "little" help, another 7 per cent "nothing of value."

New equipment to take care of winter Change-Over business will be bought or has already been bought by 45 per cent of the jobbers reporting. Twenty per cent made no report and 35 per cent said they were not buying.

One jobber is buying new grease equipment, new lighting fixtures, a new jack for installing skid chains for use when the lift is full, anti-freeze testers and dispensers, another is buying new grease guns, another "some replacement" equipment. One company, which has been modernizing recently, reports purchasing several pneumatic jacks the past two years, to assure better and more correct lubrication and flushers for all service stations and movable tire racks, so that tires and batteries can be prominently displayed. Another company is purchasing heating unit to warm up grease in differentials and transmissions.

DEALER-CONSUMER CAMPAIGNS SIMILAR

The same type of campaign for dealers is used by the majority of jobbers as for their own stations, NATIONAL PETROLEUM NEWS survey reveals.

Homant Bros. furnish dealers with quota cards based on their gallonage and its tank wagon salesmen watch to see that the quota cards are kept up. It offers prizes to dealers making quotas.

Williams Oil sends its dealers a weekly letter, giving fresh ideas for selling Change-Overs. Frank E. Davis, Frank E. Davis Oil Co., Hendrick, Iowa, says: " I work on dealers the same as though they were customers, and expect them to hand it on to their customers."

CHANGE-OVER CAMPAIGNS CHECKED UP BY BOSS

The part played by the individual oil marketer in promoting the winter Change-Over campaign, in the majority of cases, is to personally check up to see that the campaign gets under way as scheduled, and that it penetrates to every customer and prospect, including dealers.

A. H. Ehler, Paramount-Pingree Oil Co., is one who personally sees to it that every prospect and customer in his 'Profit Booster' box is checked upon.

C. Gordon, Jamestown Oil Co., Jamestown, Ohio, sends cards by mail and checks the results. If these results are not satisfactory, he follows them up by personal calls.

M. H. Williams, Williams Oil Co., Inc., too, checks his file cards and sees that whatever must be done, is done. G. L. Savory, Savory Oil Co., checks every dealer to see that he has the right products at the start, while L. J. Homant, Homant Bros. Oil Co., sets a quota for the entire station, rather than one for each man, thus getting everybody pulling together, he says. He keeps a daily record of winter item sales and sets his quota from this.

THEY PICK ON HEATERS

Heaterless cars are the particular "prey" of Tyler Tire & Service Co., South Bend, Ind., during the Winter Change-Over campaign.

The company aims to make its station winter headquarters, keeps its driveways clean and cleared of snow, and watches its stock of wiper blades, heaters and heater aids, as well as other winter items.

HOW TO SELL BY WAITING HIS SALES PSYCHOLOGY

The psychology of waiting until the customer is in the right mood for a sale is sound and profitable, in the experience of Mundhenke Oil Co., Aberdeen, S. D. The company says:

"When a customer seems in the right mood, we 'pop' it at him as to how his car should be Winterized, and the first thing, we have a sale, or a promise that he will buy from us when his check comes the first of the month."

A "good producer" for the company is its local radio broadcasts, which tie in with its direct-mail campaign on Winter Change-Over. The campaign is followed up every 10 days. This the company finds its most effective sales idea. It also depends on dealer meetings to talk matters over, holding them every six weeks, and beneficial suggestions develop frequently, it reports.

MICHIGAN MARKETER'S MYSTERY MOVED MOST MOTORISTS

"Mystery" advertising, because it arouses human curiosity, always pulls well. It did for Homant Bros. Oil Co., Alpena, Mich., which reports that this type of advertising, in connection with its direct mail campaign, brought in the most number of people to its stations last year.

Three penny post-cards were mailed in one-week intervals in the Winter Change-Over campaign. Stations were decorated with banners bearing the cryptic message: "CYMO?" Naturally, everybody asked what it meant. This was a "natural" for the station salesmen who replied: "Change Your Motor Oil," and went on from there. Windows had displays of five-quart cans of motor oil.

DIRECT MAIL, PERSONAL SELLING BEST SALES METHODS

Direct mail and personal solicitation were the two types of selling Winter Change-Overs and accessories found most effective last year by jobbers and marketers, they report to NPN.

Williams Oil Co. finds personal selling the most helpful means of putting across its campaign, and uses also display signs and sends personal letters to customers, followed up by post-card reminders every 30 or 40 days.

Porter Oil's best puller was the post-card urging "Winterizing" which its supplier furnished in a series of three mailings. Local newspaper advertising, banners and displays of anti-freeze and other winter items were also furnished.

The best seller for regular customers of Jamestown Oil Co., the company says, is the confidence these customers place in the company after 10 years of business dealings. Banners get them in and sales talks do the rest.

Personal contacts and personalized selling are the most effective means of selling for the Frank E. Davis Oil Co. It suggests winter products to fit the individual car, rather than trying to do a general selling job. Local newspaper advertising, supplemented by national advertising, were furnished by the supplier.

Advertising material, such

"Complete Winter Protection" —*A Key to Profit*

Cities Service is featuring this timely "Key to Profit" in full page ads in the Saturday Evening Post and Life, and in local newspaper campaigns . . . and 16,000 Cities Service dealers are cashing in.

Here's what we mean by complete winter protection—*the Cities Service way*—Every item a profit builder.

1. Winter-grade CITIES SERVICE or KOOLMOTOR Motor Oil. We drain, flush and refill the crankcase with your choice of these HEAT-PROVED motor oils.
2. Complete chassis lubrication. Every important point is protected by tough, tenacious Trojan Lubricants—assuring quiet, comfortable, smooth riding.
3. Fresh transmission and differential lubricants. We prepare these parts to function smoothly in the coldest weather with Winter-grade Trojan Lubricants.
4. The proper quantity of Koldpruf Anti-Freeze. This includes our complete drain and flush radiator service.
5. A complete SAFETY CHECK of your car. We check and service your tires, your battery . . . every part of your car to help you make "Winter driving a Winter sport."

It's A Complete Protection Service—A Profit-Maker And A Business Builder For Every Cities Service Dealer. Get in Touch with the Nearest Office Listed Below and join the ranks of those who have found the "Keys to Profit" Program a key to increased business.

For the enjoyment of motorists and profit to dealers the Cities Service Radio Concert—with Lucille Manners, Ross Graham, Frank Black and the Cities Service Orchestra and Singers—is presented every Friday evening at 8 P.M., E.S.T. over the NBC Red Network. During the Fall, sports authority Grantland Rice joins the Hour of Stars.

Another Timely "Key to Profit" — The Grantland Rice-Cities Service Football Guide, a free offer that pulls hundreds of thousands of motorists in to Cities Service stations and helps boost autumn business.

CITIES SERVICE

CITIES SERVICE OIL COMPANY, Chicago . . . New York . . . Cedar Rapids . . . Boston . . . St. Paul . . . Grand Forks . . . Kansas City . . . Fort Worth . . . Tulsa . . . Milwaukee . . . Cleveland . . . Detroit.

CITIES SERVICE OIL COMPANY, LIMITED, Toronto, Ontario.

ARKANSAS FUEL OIL COMPANY, Shreveport . . . Little Rock . . . Jackson, Miss. . . . Birmingham . . . Atlanta . . . Charlotte, N. C. . . . Nashville . . . Richmond . . . Miami, Fla.

as banners, mailing cards, signs, newspaper and magazine advertising, plus personal selling assistance to each individual salesman, were the sales helps furnished by its supplier to the Peerless Oil Co., Freeport, Ill. Dealer meetings and station displays proved the most effective business getters, H. C. Shouer reports.

Lloyd Motor Sales, Rockford, Ohio, was furnished posters and circulars, but personal contacts did the most selling, John W. Lloyd reports.

Station dress-ups and signs proved best for The Bennett Oil Co., Springfield, Ohio. These signs, banners and window trim ideas are furnished by its supplier as well as direct mail, all backed by national advertising.

John Rupp, Chillicothe, Mo., uses "all to good advantage" the mailing pieces, banners, fliers and news mats his supplier furnishes. Direct mail he says, was his best business getter.

BEST SALES IDEAS COVER WIDE RANGE

The sales contest and the flat price offer for a complete Change-Over have proven the most effective sales idea for Savory Oil. Direct mail has been found most effective by Mundhenke Oil, personal contacts by Lloyd Motor Sales and Davis Oil, demonstrations and driveway solicitation by Paramount-Pingree, while word-of-mouth advertising of pleased customers is considered the best promotion by Jamestown Oil. Peerless Oil finds that nothing more complicated than "a few early severe cold days" bring the customers in, while Tyler Tire is of similar opinion; that no one sales idea nor help from a supplier did the trick, but that, "it is due to our knowing our story, having the best grease to back it up and a good man to service them."

CONVINCING, REHEARSED SALES TALKS SELL

If the service station men are coached in their cues and lines, there is nothing like a good sales talk on the driveway to put over a Winter Change-Over campaign, in the opinion of H. E. Woodard, Tyler Tire & Service Co., South Bend, Ind.

"Our men are coached," Mr. Woodard explains, "when and where to begin winter solicitation. We find that their knowledge, properly passed on to the customer at the pump, is a sure winter prospect-getter."

THIS SPIRIT NEEDED

The enlightened policy of maintaining the same prices at its own stations as at its dealer stations is employed by Mundhenke Oil Co., Aberdeen, S. D. "so as not to handicap them," the company observes, "because, after all, they are our salesmen."

SELLS THROUGH FEAR

As all advertisers know, there are two prime motivating forces that sell. One of these is fear. Homant Bros. Oil Co., Alpena, Mich. plays on this emotion by urging customers to completely replace heaters and radiator hose "before they cause trouble," according to L. J. Homant.

Another who employs this sales motive is Savory Oil Co., Binghamton, N. Y. This company's dealers pass out handbills which depict a yawning motorist almost clutched in winter's icy fingers. On the handbills appears this warning captien: "Don't Be Caught Napping! Prepare Your Car for Winter Driving!"

STORES ANTI-FREEZE, SELLS FILL AT A TIME

One effective way of insuring the return engagement of your customers is to offer to drain their anti-freeze solution in the spring, and store it for them until fall. Porter Oil Co., Spooner, Wis., does this and profits by it.

One way of selling more anti-freeze is to point out the advantages of buying a fill at the beginning of a cold spell, rather than adding a little at a time, Homant Bros. Oil Co., Alpena, Mich. says. This company begins its oil and grease Change-Over talks "after the first frosts," L. J. Homant reports.

MOTORISTS IMPRESSED BY DEMONSTRATIONS

If one picture is worth 10,000 words, as a famous newspaper editor insists, then one actual demonstration of equipment ought to be worth a lot of sales talk, in the opinion of A. H. Ehler, president of Paramount-Pingree Oil Co., Salt Lake City. Mr. Ehler's company has bought some of the latest equipment for Winter Change-Over servicing and he wants his customers to see it. He says:

"Inasmuch as sales start to slow up about Sept. 1, we have our two salesmen spend one day at each of our 27 stations, contacting all people on the driveway, showing them that our company has the latest equipment with which to flush all transmissions and differentials, particularly hypoid gears. The salesmen stay right at the station and are prepared to demonstrate the flusher and, when a customer actually sees this in operation, he is bound to come back for a Change-Over before cold weather starts.

"After our salesmen have demonstrated all day at the station, they have created sufficient enthusiasm for the lessee to continue the sales campaign. We train our lessees to thoroughly understand the story of correct lubrication and the sale of the finest quality products at a fair price."

Calling attention to the Winter Change-Over campaign are curb signs reading "Change to Winter Oil, Prepare Your Car for Winter Driving."

SERVICE BEST BET, SAYS MINNESOTA MARKETER

Airplane rides, newspaper advertising, calendars and direct mail all help Albert Bittner's service station business at Winona, Minn., but his service, he says, is the best bet.

Literature furnished by his supplier at least helps "neutralize" the other fellow's, he says, because "they all do it."

"Suppliers send us literature galore, but all stations and dealers are doing the same thing, so where do you think they can all enlarge their business to any extent? Service is the secret of holding or increasing business."

On preparing his stations for winter Change-Over business, Mr. Bittner remarks:

"Haven't gone to extravagance in this line. Only display stock. Use of elaborate display of streamers, flags and signs only make the public think the oil business is celebrating another holiday. Even if some would get a few more Change-Overs, the expense would be more than our profit." Mr. Bittner personally tells his customers about their individual needs and how they can be taken care of at his station, he says.

FRESH BATTERIES ADVERTISED

Specially good sales help is reported received from its battery supplier by Tyler Tire & Service Co. Tyler says that the supplier "has a swell banner you hang up—stating that we have a fresh line of rental batteries, good new ones, and free tow-in service."

CONTEST BEST SALES STIMULANT

The competitive spirit aroused by a sales contest makes this a perennially successful method of increasing sales, many marketers have found.

One such contest conducted last year and again in September and October of this year by Savory Oil Co., Binghamton, N. Y., for its dealers resulted in an increase of from 10 to 15 per cent in sales both years, G. L. Savory reports. Incidentally, this marketer helps the dealer by giving him specific ideas to work on at stated intervals, and uses a merit-point system of rating his efforts.

"Every two weeks," Mr. Savory says, "we get out a bulletin on standings in the contest, and make suggestions for certain services to work on for the next two weeks."

This contest specifies the number of merit points each dealer gets for making a certain quota on gasoline, motor oil, grease, tires and tubes. Each merit point equals one cent. If a dealer earns 1000 merit points, he selects a $10 prize from a catalog listing 800 prizes.

The quota on the various products is, for every 1000 gallons of gasoline purchased by the dealer, 50 merits; 10 gallons of motor oil, 10 merits; 100 pounds of grease, 10 merits; every $100 worth of tires and tubes, 100 merits. There are additional merits for making any one or more of these quotas.

The contest has been the company's most effective single sales idea for dealers, Mr. Savory states.

Change-Over Also Time To Push Battery Sales

ON THE first real snappy morning, when John Q. Motorist uses the starter and the heavy oil in the crankcase brings a labored turning over of the engine, that is the battery's warning to him to have his car Winter Conditioned.

Thus the battery not only helps sell the oil companies' Change-Over but, in servicing the car for winter is the most logical time to sell replacement batteries, both oil companies and battery manufacturers say. They point out that about 70 per cent of battery replacement sales are made in the fall and winter months and are emphatic about the importance to the oil marketing company of including batteries in the Winter Change-Over program.

The additional strain on the battery in starting, in providing current for the heater, radio and other services and the fact that batteries operate at less than normal efficiencies at low temperatures are given as reasons why the inspection of batteries should be included in the Change-Over servicing. Such inspections in many cases will provide the best possible sales argument for a replacement battery, oil companies point out.

One battery manufacturer says that, where a battery in good condition is 100 per cent efficient when the temperature is at 80 above, it is only 42 per cent efficient at zero. An oil company stressing its winter conditioning program on the radio, says a battery operates at one-third of its efficiency in zero temperatures. A Texas oil company tells its dealers that, in the cold weather experienced in its marketing territory, the battery is only 60 per cent efficient.

Battery manufacturers, in addition to pointing to a larger proportionate share of battery replacement sales through oil company stations by including the checking and servicing of batteries in the Winter Change-Over program, give another argument for bringing batteries into the Winter Change-Over program this fall. One manufacturer places the replacement market at one battery for every two cars that are on the road, another estimates it at one battery to every three cars that come into the station. As reasons they give the large sales of cars in 1937, which are now about due for new batteries, and the fact that driving has been abnormally heavy this summer.

With the exception of 1929, more cars were sold in 1937 than in any other year, battery makers point out in stating why the 1939-1940 fall and winter season should provide a better than usual battery replacement market. The batteries as original equipment in these 1937 cars have passed their normal life span, with some having already gone through three winters, while the rest have gone through two seasons of unusual drain on battery vitality.

With over 25,000,000 passenger cars registered, the entire replacement market, as estimated by these battery manufacturers, is between 8,000,000 and 12,500,000 batteries a year. With the average cost of a battery being about $10, the conservative estimate of this market is $80,000,000.

In a survey conducted by one manufacturer on the battery buying habits of motorists, it was shown that 67 per cent of car owners purchased only after the battery went dead, while the balance purchased because the old battery was weak.

Emphasizing the importance which the inspection of the battery at the service station can be in bringing replacement sales, is the fact brought out in the survey that, of the 33 per cent of sales which were made before the old battery went dead, only 6.9 per cent were made because the need for an immediate replacement sale had been brought to the motorists' attention by a service man. Hard starting and other indications of weakness of the battery which came to the motorists' attention, caused the sale in all other cases in this 33 per cent classification.

In the same survey it is brought out that 85.8 per cent of motorists who purchased because of weak batteries went to a dealer. Of these wide-open prospects for a battery sale only 41.5 per cent, however, purchased immediately. Nearly 21 per cent had their battery tested before they purchased, while 17.1 per cent insisted upon attempted recharge before they purchased new ones. The balance either shopped around, or had their batteries repaired before finally purchasing. These figures show, it is pointed out, the possibilities for replacement sales of batteries at oil company stations which are visited regularly by motorists.

Figures in this survey on the number of battery buyers who insisted on a test of their present equipment before purchasing show the following reasons for the purchase, when it was finally made:

Trade regularly, 29.5 per cent; location, appearance and service, 22.5; confidence in dealer, 20.3; brand preference, 11.3; recommendation of a friend or reciprocity, 10.5; price discount, 10.2; while the balance of 2.9 per cent purchased at individual dealers for miscellaneous reasons.

It is interesting to note in this study of buying habits, that nearly 3 out of each ten batteries were purchased because the motorist "trades there regularly". The manufacturer points out that this is a result rather than a cause. Car owners trade regularly at one outlet because the station deserves the patronage by reason of good service, convenient location, popular brands, etc. It might well be added here that any properly equipped and operated station is capable of combining at least the first three reasons why car owners buy batteries where they do.

THE merchandising of batteries through the station is necessarily one of service. First, the need for a battery must exist. They can be sold only to car owners who have a failure, or batteries in danger of failure. The trade-in, that is, selling a battery to a car owner whose present equipment might be operating satisfactorily but is nearing the end of its normal life expectancy, is another method of merchandising batteries, but as yet is a very small portion of the replacement market.

The first source, battery failure, is the greatest source of replacement business. This fact brings home to the service stations the value of constant checking of its customers' batteries so they can sell the replacement, rather than risk losing the sale because, in the case of failure, it may not be convenient for the motorist to buy at his regular station.

The second source of battery busi-

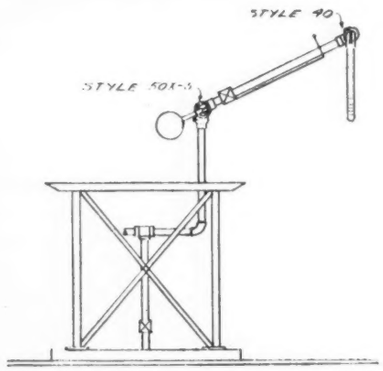
WON'T STICK IN COLD WEATHER

All Chiksan Swing Joints turn easily in cold and warm climates.

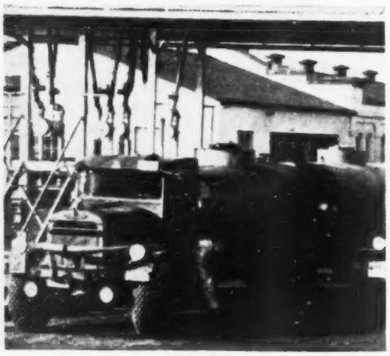
Style No. 50x-5

Style 40

The Loading Rack shown below uses these two Chiksan Joints for added flexibility.



Sketch above shows piping installation used in Loading Rack below.



You get the same smooth, easy turning with Chiksan *Ball-Bearing* Swing Joints the year 'round . . . and tightening or adjustment are not required to prevent leaking.

•

Representatives in Principal Cities
Distributed Nationally by Crane Co.

CHIKSAN BALL BEARING SWING JOINTS
CHIKSAN OIL TOOL CO., LTD.
FULLERTON, CALIFORNIA

ness—those in danger of failure—is the most profitable for the station, but unlike failures, this business must be solicited and can be by testing batteries of customers' cars. When the car is in the station for Change-Over servicing is the most logical time to test the battery, oil companies and battery manufacturers say.

One manufacturer suggests a six-point free battery service, in connection with Change-Over, which includes: Cleaning the top, testing with hydrometer, filling cells, inspecting cables and terminals, cleaning and greasing terminals, and tightening the battery in the cradle. The hydrometer test is the one which the station should be mainly interested in because it is the one that determines the condition of the battery and is the first step in the direction of new business.

The third source of battery business —trade-ins—as yet is the smallest source of battery replacement business because it is the least used, one manufacturer states, adding; "There is no reason why batteries should not be traded before they wear out. The dealer should watch for original equipment batteries which have been in service for at least 18 months, selling replacements and taking in the original equipment and making an allowance on the unexpired portion of the battery."

TO do a complete job of merchandising of batteries, charging and testing equipment and battery tools are a necessity for the oil company's stations, because the sale of batteries is primarily one of service, and to give complete and proper service the station must be properly equipped.

Prices for charging and testing equipment range from less than $50 to over $100, with the average being in the neighborhood of $90. This equipment is sold by battery manufacturers virtually at cost. It can be bought by the oil company and sold to its dealers on time payments, enabling the dealer to pay for the equipment out of the profits brought in by the service.

One battery manufacturer points out that of 15 batteries tested free, the operator should average one new battery sale, with a gross profit of around $4; four recharges at 75 cents each, or $3; and 12 rental battery days at 25 cents per day, or another $3, making a gross profit of $10, or 66 cents for each "free" test made. Another manufacturer figures a new prospect for a battery sale on each 15 tested, with the testing producing three recharge and rental jobs.

IT is pointed out that of every 100 batteries that take a charge satisfactorily, no less than 18 are under capacity as a result of ordinary wear, and unless the capacity test is given, there is no way to identify them and no opportunity to replace them without running the risk of having some competitor learn of their condition first, one manufacturer says.

The same manufacturer urges oil companies to have their dealers set up a plan of free charging in case of failure for its customers' batteries if they have them checked once a month by the dealer, as a means of leading to more battery sales.

This plan calls for the oil company to set up a record system by which its stations and its dealers can register all motorists who participate in this service. These cards should be gone through daily and motorists advised, by phone call or postcard, when they do not come in for their regular monthly checkup. A good time to start such a battery checkup service, it is pointed out, is in connection with the Change-Over servicing, when the motorist has in mind taking the precautions to safeguard his car through the coming winter months. Arranging for a regular inspection of his battery is one of these precautions.

Battery manufacturers supply oil

companies with merchandising programs which they can use at their own stations and pass on to their dealers. Also the manufacturers' representatives will work with dealers in setting up merchandise and sales programs leaving only the general overseeing and carrying of battery stocks to the oil company.

Dealers can make between 20 and 40 per cent off list price in the sale of replacement batteries, depending on the grade and type sold. The oil jobber, acting as a wholesaler, will make between 25 to 28 per cent, plus additional discounts for quantity prices and dollar volume.

One manufacturer points out that the profit to the service station on the sale of one battery will equal the total profit from 100 gallons of gasoline, or from 15 spark plugs, 20 quarts of oil; or seven grease jobs. It is also pointed out that it takes only 10 minutes to install a battery compared with 100 minutes, 75, 60 and 175 minutes respectively to service or install the items compared to it.

Oil marketing companies do not need to tie up much cash in inventories of batteries. Less capital is needed now than a few years ago, due to standardization of batteries for different makes of cars. Manufacturers point out that three types of batteries now will supply about 85 per cent of the replacement market of today. However, it must be added that many of the 1940 cars have a long narrow battery and in about 18 or 20 months when they are due for replacement it may be necessary to increase the types to be carried to four.

IT is possible to carry three grades of batteries in different price ranges and with a different ampere hour capacity. It is generally believed that the average service station can carry two grades, the low ampere hour grade and the highest ampere hour capacity in three types, making a total of six batteries to cover the entire market.

Manufacturers add that reasonably quick delivery can be made when an odd-size battery is needed, especially in the metropolitan centers where manufacturers and large jobbers carry complete stock, so it is not a necessity for stations to carry all battery types and sizes to be sure to cover the market.

Manufacturers sell, virtually at cost, racks, merchandising displays for stocking of batteries and direct mail and other advertising material which the oil company can use in promoting the sale of batteries through its own or dealer stations.

Free identification material is also supplied, including curb signs, window and counter displays and large banner displays. Some manufacturers sell dummy batteries for display so the actual stock need not be used for this purpose. Advertising mats for local newspaper advertising are also supplied, and in some cases, it is understood, the manufacturers co-operate in the cost of local advertising.

Battery manufacturers urge oil companies to have their stations and dealers giving battery service, post their name and phone number in each of their customers' garages to remind them to phone for service when the battery goes dead in the garage, which is where more than two-thirds of the battery failures at present occur.

One manufacturer has a copyrighted card with an attached thermometer, which is supplied to the dealer at cost with his name and phone number imprinted. This card features a large arrow pointing to 32 degrees above zero on the thermometer, with the arrow reminding the motorist to "Watch Out For Starting Failure", and for him to "1, Change to Winter Oil; 2, Fill your Radiator With Anti-Freeze; 3, Have Your Spark Plugs Cleaned and Checked; 4, Have Your Starting System Checked," and in larger type "Keep Your Battery Fully Charged".

Advertising of the battery manufacturers directed at the motorist in national magazines and newspapers and on billboards ties in with the oil marketers' winter Change-Over campaign. The majority of these ads point out the effect of cold weather on the battery, and stress replacement to avoid failure.

ONE *Revolutionary* DEVELOPMENT GIVES YOU ALL THESE ADVANTAGES

50% to 75% Saving
IN EVAPORATION AND STORAGE LOSSES

NO MECHANICAL PARTS
No Upkeep—No Labor Cost for Inspection—No Binding, Sticking or Freezing at Critical Moments

POSITIVE PROTECTION
Against Tanks Bursting or Buckling
Positive Operation—No Dependence on Human Element—No Parts to Bind or Stick.

MINIMIZES FIRE HAZARD

KEEPS DUST AND MOISTURE OUT OF TANK

PROTECTS QUALITY BY RETAINING LIGHT ENDS

★ The advantages outlined above are revolutionary, but there is no guesswork about them . . . all have been proved by the everyday experience of users—experience which demonstrates conclusively that ECONO-VENT provides *greater* protection than has ever been possible before, plus complete freedom from mechanical attention, plus *50% to 75% savings in evaporation and storage losses* . . . To delay investigation of ECONO-VENT is to postpone its advantages.

Write for complete data today.

LION MFG. CORPORATION
2703 Belmont Ave. **Chicago**

SAVE WITH *Econo-vent* LIQUID SEAL TANK VENT
The New Type Tank Vent with the Revolutionary **LIQUID SEAL**

SAFETY Sells Tires With Change-Over

SELLING of tires to the winter motorist can be tied in with the winter Change-Over programs of oil companies.

The service station operator has a double barreled argument for the sale of tires in connection with the winter Change-Over.

1—The danger of driving with "bald" tires.

2—The danger and inconvenience of a tire failure during the winter.

Nation-wide advertising of the larger tire manufacturers is directed at aiding the sale of tires to the winter driver by stressing the safety factor of new rubber under the car. It also gives the service station man another argument for the sale of replacement tires now, in pointing out that tires will receive less tread wear on cold roads, and that snow and slush act as a natural lubricant for rubber.

The station man can take advantage of this national consumer advertising which will tell the motorist that he can purchase his tires now and have a trouble free winter, and at the same time have virtually new tires for next spring and summer driving.

The merchandising of tires through the oil service station, tire manufacturers and oil company merchandising directors emphasize, is largely through investigation and observation on the part of the employe to determine and call attention to the need for this item to the motorist.

They stress the importance of a thorough inspection when cars are on the lift as the main step in merchandising tires. With many cars in for a Change-Over from summer to winter lubricants the opportunity of checking tires will be greater during the winter conditioning period. While the lubrication department is regarded as the most logical place to check tires for replacement sales, some companies impress on dealers and station employes the value of inviting the gasoline customer to have his air pressures checked, giving the station operator or employe an opportunity to observe the condition of tires.

Also, some station operators watch the mileage of their customers' cars to get the first chance at replacing the original rubber when the car has been driven around 20,000 miles without a change of tires.

As emphasized by one merchandising manager of an oil company, the station has at least six months to work on his regular customers, from the time when outside observation shows excessive wear and before pressing need for tires exists, and constant checking of tire conditions to sell to the need of the motorists is the first fundamental of merchandising this item.

Service station operators in the 24 states which require periodic inspection of automobiles have an additional sales point in the merchandising of tires. In most of these states, dangerously worn tires are ruled off the streets, and this fact can be used to sell tires before cars are rejected by state inspectors.

The total market for passenger car replacement tires in 1939 based on sales so far this year will be around 31,000,000 units, according to tire manufacturers. They estimate that the average replacement tire sale will be $10, making the total gross market for replacement tire sales in 1939 about $310,000,000. It is also estimated that nearly 20 per cent of this market will appear during November and December, and the oil marketer who includes active selling of tires with his winter Change-Over is in position to take more full advantage of this market for nearly $60,000,000 worth of tires for replacement during the two months.

In normal markets oil company stations handling tires can make up to 30 to 40 per cent gross profit off list prices. The percentage of gross profit to the oil marketer wholesaling tires depends on the volume of tire business, margins paid to dealers, but will run from a minimum of 5 per cent to about 15 or 17 per cent off list prices.

The stocking of tires depends on the volume and nature of demand on the individual oil company station or dealer. Five tire sizes, however, will take care of 85 per cent of the replacement tire demand, manufacturers report, adding that their distribution of tires is such that the individual station or oil marketing company can quickly obtain tires not regularly carried in stock.

Display, another fundamental of good merchandising, also is necessary to push the sale of tires in connection with winter Change-Over programs. Window and counter displays, as well as banners stressing safe tires for winter driving, are furnished free by manufacturers. These are either furnished direct or through the tire wholesaler. Racks for display of merchandise as sold at the tire company cost. Advertising mats for local advertising, which also warn of the danger of skidding with "bald" tires on winter pavements are furnished free by some manufacturers.

The fact that constant checking of tires on cars in the lubritorium, and inviting all motorists to pull over to the air tower to check air pressures will increase the sale of tires is found in the sales record of a group of dealers of one company. This oil company and a tire manufacturer worked out a merchandising program which featured this checking of all tires which entered the station and one group of dealers increased tire sales from $990 in one month to $3400 the first month the program operated.

Selling Light Bulbs With Winter Change-Over

PUSHING the sale of light bulbs is part of the Winter Change-Over program.

Checking the lights to see how many are burned out or are dimmed and need replacing is necessary to sell bulbs and the Change-Over campaign is the logical opportunity to offer this service.

Oil companies say the motorist is quicker to appreciate this service in the fall, when the days are short and more driving is done with lights and when sleet and rain make maximum efficiency of the lighting system on the car more necessary.

The service offered at stations to sell bulbs varies from simply checking the bulbs when the lights are turned on, to a complete lighting service which includes checking the bulbs, cleaning reflectors, and aiming the headlights.

All but three of the 1940 cars will have the new sealed beam headlights. Their replacement sale will be in a complete unit and will offer a new profit opportunity for the station. However, the number of sockets for the regular light bulbs has been increasing on the late models, so that the new cars have about the same number of sockets for light bulbs as the average of older cars coming into the station, in addition to the headlamps.

One manufacturer estimates the market for auto light bulbs in 1939 to be 150,000,000 bulbs, with a value of $22,500,000. Each car will require from 4 to 8 bulbs during the year, it is estimated. Cars produced in 1939 have an average of 13.3 sockets, while the average for all motor vehicles registered is more than 10 sockets.

Using the replacement figure of four bulbs, the service station should sell one bulb to 165 gallons of gasoline to get its normal share of this market, based on about 650 gallons of gasoline average annual consumption for passenger cars.

This manufacturer states that every motorist who drives into a service station is an immediate or prospective purchaser of auto bulbs.

Oil company stations sales opportunities are much larger than for other regular retail stores because the stations are open in the evening and on Sundays and holidays when other stores are closed but when a good share of the driving is done.

Indicative of the possibilities of bulb sales during the Winter Change-Over Campaign are the figures prepared by a manufacturer, which show that the average monthly percentage of auto bulb sales are highest from October to March. The monthly percentages of bulb sales are:

January	8.5	July	7.0
February	9.5	August	7.5
March	9.0	September	8.3
April	8.3	October	8.8
May	8.3	November	9.0
June	7.8	December	8.0

The salability of bulbs and headlight service is aided in the 23 states where periodical inspection of motor vehicles is compulsory. This inspection includes headlights. Lights with bulbs of unbalanced candle power, or with one or both filaments burned out are condemned, as are cars with headlights out of adjustment. The motorist either before or after inspection, is a prospect for lighting service.

This experience with compulsory motor vehicle inspections indicates the large market for lighting service in all states. For example, of 1,763,536 cars inspected in New Jersey when the law was first made effective, 455,077 were condemned for headlights alone. In Massachusetts, of 850,000 cars inspected, 374,000 were rejected for inadequate lighting, while in Pennsylvania, of 1,937,747 checked, 922,367 were rejected for the same reason.

Twelve types of bulbs cover 95 per cent of the total demand for automotive lamps, manufacturers say. The average manufacturers' list price for the highest grade bulb, they report, will average between 19 and 20 cents. The list on the new prefocused headlight bulbs is generally 30 cents, while the list for an indicator bulb is seven cents.

Oil marketers may purchase directly through the bulb manufacturer for distribution to dealers and through their own outlets. Some manufacturers sell on consignment only, so no capital tie-up is necessary. Jobbers' discounts off the manufacturer list prices will range between 54 and 62 per cent, it was said, depending on the dollar volume of the account.

Selling through his own outlets, the oil marketer can make a gross profit of 17 to 22 cents on the prefocused headlight bulb, depending on whether it is sold at 30 or 35 cents. Indicator bulbs are generally sold at a minimum of 10 cents, with some stations getting 15 cents for replacing this type of bulb.

It is understood to be almost general practice to allow dealers around 40 per cent off list price. Dealers sometimes charge over the list price, with some making an installation charge, resulting in a dealer profit on this item of over 50 per cent on each bulb.

The selling of bulbs through the oil company service station presents one fundamental problem for the marketer or oil company manager. It is the determination of whether the station can profitably offer a complete lighting service, or whether it should confine itself merely to the replacement of burned out bulbs.

While the complete lighting service is the more profitable, it presents physical difficulties which preclude its adoption by many stations.

THE complete "Safety Lighting Service" promoted by one large bulb manufacturer is grouped around three major functions; cleaning reflectors and lenses, aiming headlights and replacing bulbs. This company supplies to jobbers, for dealer use, reflector cleaning fluid, an unmounted screen for aiming and adjusting headlights, and a detector, made of white enamel, to show up faulty bulbs or bulbs which are beginning to blacken.

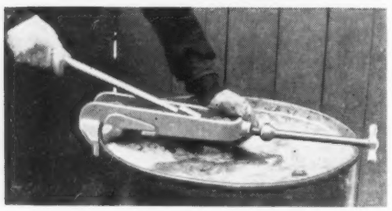
To use the aiming screen it is necessary to have 25 feet of level space in front of the screen. To place it on the back wall of the lubritorium would not be practical, it was pointed out, because most stations do not have perfectly level driveways in front of the lubritorium, and also this would interfere with the other services of the station. Some stations are not manned with the number and type of operator to offer this service.

In offering complete lighting service it is necessary for the station to carry an inventory of lenses, reflectors, gaskets, relays, switches and perhaps other electrical parts for replacements. The lack of uniformity in these items, it is said, makes it necessary for the station to carry a stock that would not be justified unless complete lighting service was actively pushed.

Of the 378 answers to a questionnaire sent out by the manufacturer offering the complete lighting service

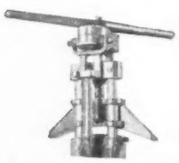
SALVAGE DRUMS

at a profit



Chime-Master saves hours of hand straightening—salvages even badly battered drums—restores attractive appearance and original chime shape. No skill required to operate. Rugged, trouble-proof. Satisfaction guaranteed. Order by number or write for literature.

MODEL 425 (Illustrated above) For quantity drum reconditioning—or general utility. One stroke of lever straightens ordinary dent in 55 gallon one-trip container chime. Price $25.00 F.O.B. Milwaukee.



MODEL 400—BENDS 1" STEEL BARS! For returnable drums with reenforced chimes. Power enough to bend 1" square steel bars. Shift lever disengages high power gear for fast approach to work. Price $45.00 F.O.B. Milwaukee.

ZETTERLUND ENGINEERING WORKS

3705 Richards St. Milwaukee, Wis.

SOUTHWEST FOR Good GREASE

NEW ALL PURPOSE EXTRA DUTY GEAR LUBRICANT

Meets industry's demand for ONE lubricant for ALL gears — Heavy Duty Hypoid, Hypoid, Extreme Pressure, Conventional. Two weights, S.A.E. 90, S.A.E. 140.

NEW GUN-FIL

A container for filling Grease Guns fast and clean. No mess. No waste. Gun-Fil sells grease.

NEW — SEND FOR ILLUSTRATED FOLDER & PRICES covering our complete line of laboratory controlled greases and useful containers.

SOUTHWEST GREASE & OIL CO.

OFFICE & FACTORY: 225 W. WATERMAN

WICHITA, KANSAS

—some of which were service stations but also including car dealers and other types—average sales of headlight service jobs were 36 per month. The same dealers reported that labor charges on headlight aiming and reflector cleaning amounted to $55 per month. They also sold an average of $26 worth of parts, and $22 worth of bulbs, or total receipts from this lighting source of $103 per month of which about ¼ to 1/3 they paid out for the merchandise.

These dealers reported that they made an average charge of 50 cents for reflector cleaning; 37 per cent charged $1 for headlight aiming, 33 per cent 50 cents and 24 per cent charged 75 cents for this service.

Merchandising managers of oil companies agree that stations can add the sale of light bulbs to their Winter Conditioning program, and carry them as a fast-moving all-year item. No technical knowledge is necessary to sell the motorist the proper bulb. Bulb manufacturers supply charts which show the proper lamp for each car and truck.

The best approach to selling auto bulbs to the motorist on the driveway during the daytime is to ask the customer to turn on his lights while the station operator is cleaning the outside of the lenses to see if any bulb replacements are needed. Also, when filling the tank in the rear, the request to check the tail light and the stop light can be made. At night, observation on the part of the station operator is about all that is necessary.

When a car is in the lubritorium or on the wash rack, the headlights can be checked for balance by observation—to see that the proper candle power bulb is in each lamp. Burned out bulbs in the dash board, dome, fog and tail lights can also be checked then for possible replacement.

Oil company station supervisors agree that not much of the available display space at a station can be devoted to lamp bulbs alone. However, they feel that bulb displays serve two purposes. First, they call attention to the fact that lamp bulbs are for sale, and second, they keep before the station man the fact that he has bulbs for sale.

Lamp manufacturers supply displays for the curb, sandwich-type signs, as well as banners, window and counter displays. Some have a general program of suggested merchandising hints for the sale of bulbs. These are supplied without cost with the purchase of 50 bulbs, or even fewer bulbs in some cases. Oil marketers can make arrangements to receive this material from the lamp manufacturers when they purchase bulbs, for distribution to their stations.

Some of the counter displays offered by manufacturers are fitted with drawers in the rear to hold the supply of bulbs, while others have a rack for display and stock in the front. Window and counter displays generally run between one and two feet in height and length. One manufacturer provides a flashing type electric sign made of heavy cardboard for window or counter use, while another has a display with a silvered indenture made to simulate the car reflector.

Posters and banners for outside signs ask "Want More Light?"—"Lights O. K.?" and they advertise "Complete Lighting Service" for stations so equipped.

Planning Is Key to Success Of Change-Over Campaigns

A survey conducted by NATIONAL PETROLEUM NEWS among independent oil marketers illustrated that the percentage increase in business during Winter Conditioning campaigns was in direct ratio to the sales effort, preparation and follow-up among dealers or station employes.

One Indiana company begins its winter Change-Over campaign in October and carries it through until late November. Salesmen meetings are held for the purpose of analyzing customer needs, and selling and service procedure. Preparation for the campaign is started in August.

Merchandising of "care-free" winter driving at stations operated by this company is carried on principally at the station driveways, by attendants who have been checked on when and what to say in making the solicitation for winter business. It was found that, when the salesmen were thoroughly trained and believed, themselves, in the need for Winter Conditioning, they could convince the customers.

During the campaign, stations carry attractive window displays and feature battery and tire signs, as well as banners stressing the need for anti-freeze, and the importance of cleaning cooling systems. Follow-up cards on file in the lubritorium receive particular attention.

Personal service by station attendants in looking after customers' cars, always with an eye out for cars not equipped with heaters, or those having broken or worn out wiper blades, batteries in poor condition, smooth tires, frayed or worn fan belts, or other needs, makes up the backbone of successful merchandising at stations operated by this company.

Stations are made "winter headquar-

ters", with clean driveways, good merchandise, adequate equipment, and plenty of personalized selling in which the customer is told repeatedly about the Winter Change-Over service.

During past winter campaigns, this company increased its gasoline sales 2 per cent—normally they would decline during this period—motor oil 15 per cent, lubrication and grease services 15 per cent, battery sales 30 per cent and other accessory sales 25 per cent.

National Detour Guides Issued by Texaco

NEW YORK — The Texas Co. in August began experimental issuance of motor trip maps showing construction in progress on roads throughout the country. Two issues of the maps, the second dated to Nov. 15 have so far appeared. Formerly, only state and sectional bulletins showing detours were available to Texaco patrons. The national detour guides will be published at intervals throughout the year.

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

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MANCO, Ser. No. 421,975. Manning Mfg. Co., Rutland, Vt. Filed July 26, 1939. For lubricating oil and gasoline. Published October 3, 1939.

PENNPAYZ, Ser. No. 422,094. Harold C. Hall, doing business as Clayton Oil Company, Pleasant Ridge, Cincinnati, Ohio. Filed July 29, 1939. For lubricating oils and greases. Published October 3, 1939.

FREOL, Ser. No. 322,194. Barton-Grimsley Corporation, Los Angeles, Calif. Filed August 2, 1939. For lubricating oils and greases. Published October 3, 1939.

MARATHON, BEST IN THE LONG RUN, and picture of a runner, in design, Ser. No. 422,519. The Ohio Oil Company, Findlay, Ohio. Filed August 11, 1939. For motor oil, kerosene, fuel oil, lubricating oils and greases. Published October, 1939.

LUBRICOATING, Ser. No. 422,583. Herman Epstein, doing business as Steel Mills Compounds Company, Kansas City, Mo. Filed Aug. 14, 1939. For anti-friction coating compounds for metals being extruded and for machine parts employed in forming metal bodies. Published October 3, 1939.

M. I. W., Ser. No. 420,182. Muskogee Iron Works, Inc., Muskogee, Okla. Filed June 5, 1939. For oil-well and oil-field tools and equipment. Published October 3, 1939.

BRILLIANT PENN TIME TELLS 100% PURE PENNSYLVANIA, and winged hour glass, and outline of map of Pennsylvania. Ser. No. 422,212. Johnson Oil Refining Company, Chicago, Ill. Filed Aug. 2, 1939. For motor oil. Published Oct. 10, 1939.

Lithuania Abandons 'Alky-Gas'

WASHINGTON — Lithuania has abandoned its compulsory "alky-gas" regulations, after a three-year test, according to information reaching the Department of Commerce here. According to Lithuanian economists, experience has shown that "motorin" (the name given the alky-gas blend in that country) has not justified itself.

Technical difficulties experienced with "motorin" were listed by the economist and technicians as (1) compared with gasoline, approximately 10 per cent more "motorin" is required for the same service; (2) "motorin" produces sediments of salts detrimental to carburetors; (3) it is detrimental to painted parts; (4) because of its hydroscopic nature, the alcohol in "motorin" draws water into the cylinders; (5) after burning, "motorin" leaves more ash particles than gasoline, and (6) the ignition of "motorin" is more difficult than of gasoline.

"Motorin", as prescribed by the government from March 31, 1936, through Sept. 15 this year, had an alcoholic content of about 35 per cent, having been introduced to provide an additional outlet for potatoes and to reduce imports of petroleum motor fuels.

In 1937 and 1938, according to government economists, the consumption of potatoes in distilling the alcohol required to make "motorin" was but 13,000 metric tons, less than 1 per cent of the domestic potato crop. The potato market was unaffected, and the local farmers benefited little because most of the potatoes used for the alcohol were taken from fields owned by the distilleries. Imports of automotive fuels were reduced, but there was a commensurate decline in customs duties.

In addition to all these factors, according to reports reaching here, the admixture of alcohol made the cost to the consumer of motor fuel so high that Lithuania has become one of the most expensive countries of the world in this respect.

Oil Scenes on the Walls

CHICAGO—Business men dining in the new grill in the Pure Oil building here will be reminded of the oil industry, as the walls are decorated with petroleum scenes. The photo-murals show scenes from the Pure Oil Co.'s history depicting the industry from exploration for oil through producing, refining, transportation and marketing at the service station.

they're 100% pure Pennsylvania

Here are motor oils refined from nature's finest crude, conditioned for cold-weather driving—10 W and 20 W grades in Beaver-Penn, Fort Pitt, Penn Trump and Four-State. There's a steady, year-round demand and rapid turnover for these well-known FREEDOM brands. If you are not familiar with FREEDOM quality, write today for information on exclusive FREEDOM franchise for your territory.

FREEDOM OIL COMPANY, FREEDOM, PA.

Pacific Coast Bulk Plant and Warehouse: Los Angeles, California

Markets

Mid-Continent

TULSA, Oct. 28.—Quotations and sales prices for Grade 26-70 natural gasoline F.O.B. Breckenridge dropped 0.25 cent late the past week when suppliers reported an accumulation of stocks in the Texas area. They said this accumulation was the result of tieup in boat movement from the Gulf Coast, which not only affected exports of natural gasoline itself but also resulted in curtailed use of natural gasoline by Gulf Coast refiners. Quotations reported F.O.B. Group 3 remained at 4.25 cents throughout the week.

Refiners said that while refined gasoline movement from Mid-Continent plants was "not as lively as we'd like to see it, there are no stock accumulations". Supplies, they said, continued to be closely held at generally unchanged quotations.

Wax prices continued their upward climb. Only two refiners in the Mid-Continent reported offering wax. Their quotations were up 0.5 to 0.75 cent at 5.75 to 6 cents for 124-126 white crude scale. Supplies were said to be limited and demand active.

No changes were reported in Mid-Continent lube prices.

Gulf

NEW YORK, Oct. 28.—Several cargo sales were said to have been made at the Gulf in the past week or ten days, according to reports in New York the past week. Detailed information was not available for publication. The reports, widespread in the trade here, however, occasioned reduced quotations by at least two refiners.

Three cargoes of Bunker "C" fuel oil were said to have been sold at under $0.90 per barrel and at least one large refiner said he was offering material at this price the past week. Early in the week, quotations ranged from $0.95 up, according to reports. From the southwest, a refiner who had been quoting $0.95 also said he was considering reducing his quotation.

Recent sale of a cargo of 68 octane, 400 e.p. gasoline, to a foreign buyer at 6.25 cent was disclosed the past week. An inquiry was in the market from a foreign buyer for a cargo of 65 octane, 390 e.p. gasoline. Further details were not available.

No changes in quotations for GCRA specification products were reported the past week. For other gasolines, quotations reported for 60 octane were down 0.125 cent on the low at 5.75 to 6 cents, and for 72-74 octane leaded, down 0.125 cent on the low at 6 to 6.75 cents.

Eastern

NEW YORK, Oct. 28.—A 0.25 to 0.5 cent advance in prices for high octane grades at Baltimore featured gasoline markets along the Atlantic Coast in the week ended Oct. 28. Prices also were reported higher at several northern seaboard points.

On Oct. 26th, a Baltimore supplier who had been quoting 6.25 cents for all grades of gasoline from 65 octane up, reported advancing his quotations to 6.50 cents. The next day he announced an additional 0.25 cent advance to 6.75 cents in his quotation for 72-74 octane. Other Baltimore quotations reported for the 65 octane and above and 68-70 octane grades ranged up to 7 cents, and for 72-74 octane up to 7.75 cents.

Boston 60-64 octane gasoline was up 0.25 cent to 6.50 cents low when one supplier who had been quoting 6.25 cents reported advancing his quotation. High octane grades also were advanced by some suppliers at Portland, Boston and Providence but for the most part advances were by suppliers at the highs of price ranges.

Demand for gasoline, mostly for shipments against contracts, was reported good for the season.

Pennsylvania

CLEVELAND, Oct. 28.—With the exception of higher prices for white crude scale wax, prices for refined products in western Pennsylvania generally were reported unchanged the past week. Most refiners said they had noticed an improvement in demand for fuel oil. A large quantity of this material was said to have been moved out of the lower field during the week. Refiners continued to report heavy demand for lubricating oils.

Two refiners reported quoting 6 cents, New York, for 124-126 A.m.p. scale wax, one of them saying he had quoted still higher price "in some directions". Another refiner reported 6 cents, New York, for 122-124 A.m.p. These prices represented 0.5-cent advances over the week.

Demand for wax and petrolatums was reported "exceptionally heavy". One refiner who said he generally handled his wax sales through New York said he had been receiving inquiries direct from Europe. Another refiner said he had received inquiries from people who had never contacted him before, some of them from the Mid-Continent.

No changes in lubricating oil quotations were reported. One refiner who had been out of the market on lubes for some time late in the week said he was offering neutral oils to jobbers at 25 cents for 25 pour 200, and 23 cents for 25 pour 150 vis. He said he was not offering at these prices to other refiners or brokers, nor to jobbers for resale to refiners or brokers. Other quotations reported for 200 vis. neutral ranged up to 32 cents, and for 150 vis., up to 28 cents. Other refiners said they were still restricting lube sales to regular customers.

California

LOS ANGELES, Oct. 28.—Improvement in Grade "C" bunker oil was reported on the West Coast the past week. From all indications, one supplier said, it will show even further improvement in the next 30 days. A major company reported having signed many 1940 contracts for this oil at $0.875 per barrel.

After a comparatively quiet market for kerosine-distillate, one supplier reported a large sale the past week to the straits settlements. Further details and confirmation were not available.

Japanese inquiries for several grades of gasoline appeared to be merely "price feelers", according to trade reports.

N.P.N. Gasoline Index

	Dealer T.W. Cents per	Tank Car Gallon
Oct. 30	9.83	6.25
Month ago	9.74	6.14
Year ago	9.71	5.61

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

Fuel Oil

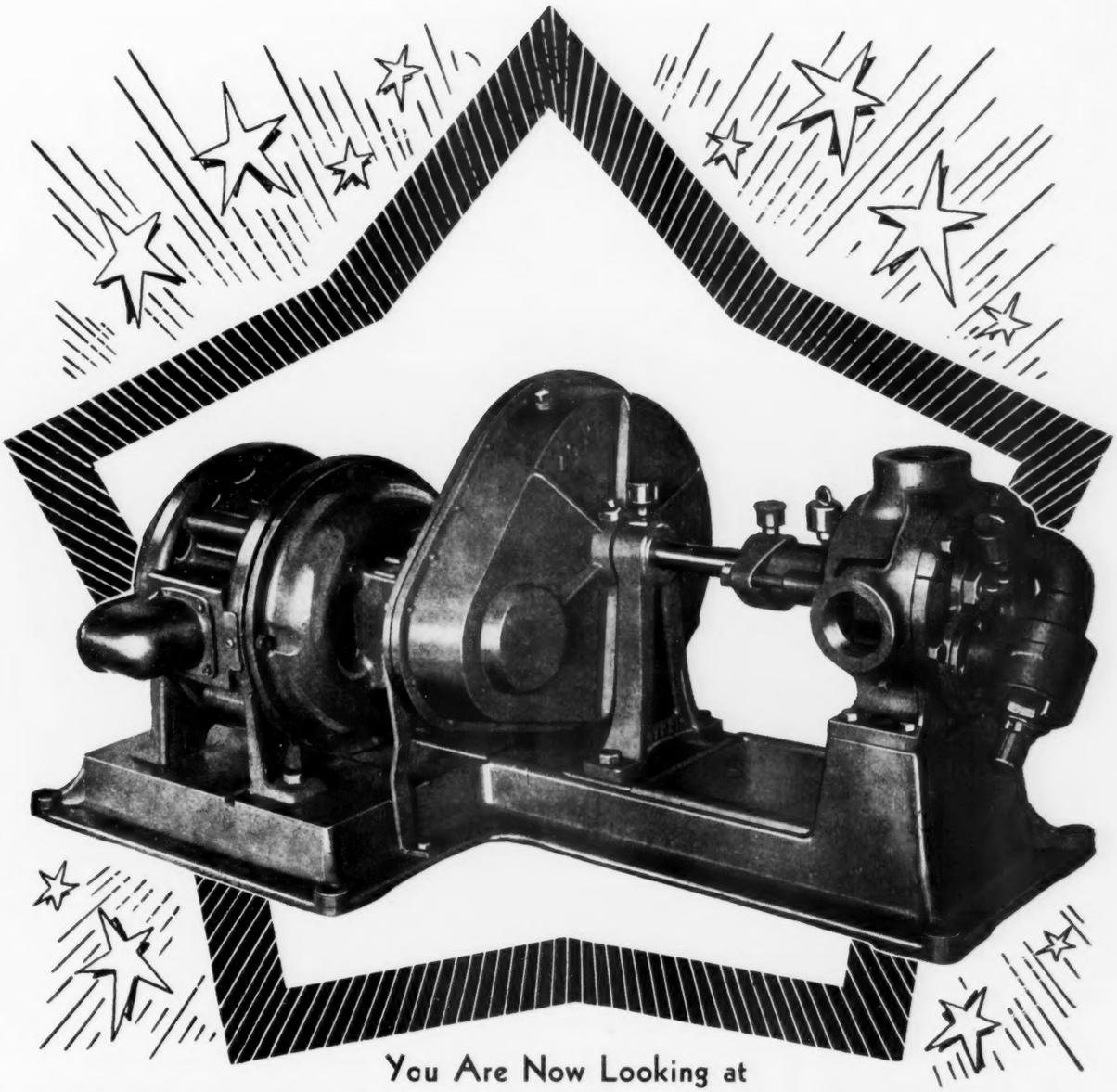
TULSA, Oct. 28.—Scarcity of Bunker "C" fuel oil at the Gulf Coast has sent buyers up into East Texas and Louisiana inquiring for heavy fuels, according to reports in the Mid-Continent the past week. Supplies in most Mid-Continent districts were said to be closely held.

Increase in inquiry for light fuel oils was reported by several refiners late in the week. Quotations throughout the Mid-Continent were reported unchanged.

* * *

CHICAGO, Oct. 28.—Abnormally high temperatures the last week of October held down jobber demand for domestic burner fuels and little spot activity was reported in Chicago. Some

(*Continued on page* 55)



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REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel of 42 gallons, wax and petrolatums in cents per pound in barrels, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Gasoline

Prices Effective	Oct. 30	Oct. 23
OKLAHOMA		
U. S. Motor: (Oct. L-3)		
62 oct. & below	4.50 – 4.75	4.50 – 4.75
63-66 oct.	4.75 –5.0625	4.75 –5.0625
67-69 oct.	4.75 – 5.25	4.75 – 5.25
70-72 oct.	5.25 – 5.50	5.25 – 5.50
60-62, 400 e.p.	(h)4.50	(h)4.50
WESTERN PENNA. REFINERS' QUOTATIONS		
Bradford-Warren:		
Motor gasoline:		
U.S Motor (58-62°)	(e)5.00	(e)5.00
Min. 65 oct.	6.75	6.75
"Q" gasoline	(e)6.75	(e)6.75
73-74 oct. (L-3)	(e)7.00	(e)7.00
75-76 oct. (L-3)	(e)7.30	(e)7.30
Other districts:		
Motor gasoline:		
U. S. Motor (58-62° gravity):	(h)5.00	(h)5.00
"Q" gasoline	6.50 – 6.75	6.50 – 6.75
CENTRAL MICHIGAN (a)		
Str.-Run Gasoline	(c) 4.50 –4.75	(c) 4.50 –4.75
U. S. Motor: (Oct. L-3)		
67-69 oct.	(e)6.25	(e)6.25
70-72 oct.	7.00	7.00 – 7.25

Prices Effective	Oct. 30	Oct. 23
CALIFORNIA (3c tax to be added if used state)		
U. S. Motor:		
54-58 gravity, for in-state shipment	6.50 – 9.75	6.50 – 9.75
54-58 gravity, for out-side state shipment	6.50 – 9.00	6.50 – 9.00
58-61 gravity, 375-400 e.p., 65 oct. & above	7.75 – 9.75	7.75 – 9.75
N. TEX. (b)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	4.50 – 4.75	4.50 – 4.75
63-66 oct.	4.75 – 5.00	4.75 – 5.00
67-69 oct.	5.00 – 5.25	5.00 – 5.25
70-72 oct.	5.25 – 5.625	5.25 – 5.625
60-62, 400 e.p.	(e)4.50	(e)4.50
KANSAS (For Kansas destinations only)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	(e)4.75	(e)4.75
67-69 oct.	(e)5.00	(e)5.00
70-72 oct.	(e)5.50	(e)5.50
W. TEX. (b)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	(h) 4.50 –4.75	(h) 4.50 –4.75
63-66 oct.	(h) 4.875–5.00	(h) 4.875–5.00
67-69 oct.	(h) 5.125–5.375	(h) 5.125–5.375
70-72 oct.	(h) 5.375–5.625	(h) 5.375–5.625

Prices Effective	Oct. 30	Oct. 23
CENTRAL WEST TEXAS (Prices to truck transports)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	(h) 4.50	(e)4.50
63-66 octane	(e)5.125	(e)5.125
66-70 octane	(i)	(i)
E. TEX.		
U. S. Motor: (Oct. L-3)		
70-72 oct.	(e)5.00	(e)5.00
60-62, 400 e.p.	(e) 4.75	(e)4.75
N. LA. (For shipment to La. & Ark.)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	(h) 4.75 –5.00	(h) 4.75 –5.00
63-66 oct.	(e) 5.00 –5.25	(e) 5.00 –5.25
70-72 oct. leaded	(h) 5.50 –5.875	(h) 5.50 –5.875
ARKANSAS (F.o.b. Ark. plant of one refiner, for shipment to Ark. & La.)		
U. S. Motor: (Oct. L-3)		
62 oct. & below	4.75	4.75
67-69 oct.	5.25	5.25
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
70-72 oct.	7.875	7.875

(Continued on next page)

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations; Group 3 prices quoted for northern shipment. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) Two suppliers quoting. (g) To re-sellers holding licenses. (h) Two refiners quoting. (i) No quotations reported.

MID-WESTERN TANK CAR QUOTATIONS

Prices in this Midwestern Tank Car Market table are gathered from refiners and tank car marketers or brokers from their offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight rate basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Generally when prices are quoted in this Chicago market, the origin of the material is not known at the time the quotation is given, oftentimes even with the quoting refiners who have refineries in more than one refining district. All other gasoline prices are given by and for the particular refining district where the material is made and from which it is shipped.

Gasoline

Prices Effective	Oct. 30	Oct. 23
U. S. Motor: (Oct. L-3)		
62 oct. & below	4.25 – 4.75	4.25 – 4.75
63-66 oct.	4.375– 4.75	4.375– 4.75
67-69 oct.	4.50 – 5.125	4.50 – 5.125
70-72 oct.	4.75 – 5.375	4.75 – 5.375

Kerosine

41-43 grav. w.w.	3.50 – 4.00	3.50 – 4.00
42-44 grav. w.w.	3.625– 4.25	3.625– 4.25

Fuel and Gas Oils

Prices Effective	Oct. 30	Oct. 23
No. 1 p.w.	3.375– 3.75	3.375– 3.75
No. 1 straw	3.25	3.25
No. 2 straw	3.125– 3.25	3.125– 3.25
No. 3	3.00 – 3.125	3.00 – 3.125
No. 5	(e)$0.65	(e)$0.65
No. 6	$0.45	$0.40 –$0.45
Range oil	3.375– 3.875	3.375– 3.875

Chicago Naphtha and Solvent

Prices Effective	Oct. 30	Oct. 23
(FOB Group 3 as quoted by two Chicago sellers)		
Stoddard solvent	5.875	5.875
Cleaners' naphtha	6.375	6.375
V. M. & P. naphtha	6.375	6.375
Mineral spirits	5.375	5.375
Rubber solvent	6.375	6.375
Lacquer diluent	7.375	7.375

Daily range of gasoline prices as reported in PLATT'S OILGRAM (Week Ended Oct. 27, 1939)

	Oct. 23	Oct. 24	Oct. 25	Oct. 26	Oct. 27
U. S. Motor, (Octane Number determined according to L-3 Method in Okla., Texas and Mid-Western Districts):					
62 octane and below:					
Oklahoma	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
(a) North Texas	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75	4.50 – 4.75
West Texas	(c) 4.50 –4.75	(c) 4.50 –4.75	(c) 4.50 –4.75	(c) 4.50 –4.75	(c) 4.50 –4.75
Mid-Western (Group 3 basis)	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
63-66 octane:					
Oklahoma	4.75 –5.0625	4.75 –5.0625	4.75 –5.0625	4.75 –5.0625	4.75 –5.0625
(a) North Texas	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00	4.75 – 5.00
West Texas	(c) 4.875–5.00	(c) 4.875–5.00	(c) 4.875–5.00	(c) 4.875–5.00	(c) 4.875–5.00
Mid-Western (Group 3 basis)	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75	4.375– 4.75
67-69 octane:					
Oklahoma	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25	4.75 – 5.25
(a) North Texas	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25	5.00 – 5.25
West Texas	(c) 5.125–5.375	(c) 5.125–5.375	(c) 5.125–5.375	(c) 5.125–5.375	(c) 5.125–5.375
Mid-Western (Group 3 basis)	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125
70-72 octane:					
Oklahoma	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
(a) North Texas	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625	5.25 – 5.625
West Texas	(c) 5.375–5.625	(c) 5.375–5.625	(c) 5.375–5.625	(c) 5.375–5.625	(c) 5.375–5.625
East Texas	(b)5.00	(b)5.00	(b)5.00	(b)5.00	(b)5.00
Mid-Western (Group 3 basis)	4.75 – 5.375	4.75 – 5.375	4.75 – 5.375	4.75 – 5.375	4.75 – 5.375
Motor Gasoline, 60-64 octane:					
New York harbor	(c)6.70	(b)6.70	(b)6.70	(b)6.70	(b)6.70
Philadelphia district	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
Baltimore district	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75	(e) 6.25 –6.75
Motor Gasoline, 65 octane & above:					
New York harbor	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00
Philadelphia district	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
Baltimore district	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00	6.50 – 7.00	6.50 – 7.00
U. S. Motor, 58-62°:					
Bradford-Warren (Western Penna.)	(b)5.00	(b)5.00	(b)5.00	(b)5.00	(b)5.00
Other districts (Western Penna.)	(c)5.00	5.00	(c)5.00	(c)5.00	(c)5.00
Motor Gasoline, Min. 65 octane:					
Bradford-Warren (Western Penna.)	6.75	6.75	6.75	6.75	6.75
"Q" Gasoline:					
Bradford-Warren (Western Penna.)	(b)6.75	(b)6.75	(b)6.75	(b)6.75	(b)6.75
Other Districts (Western Penna.)	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75
73-74 Octane: (L-3)					
Bradford-Warren (Western Penna.)	(b)7.00	(b)7.00	(b)7.00	(b)7.00	(b)7.00
75-76 Octane: (L-3)					
Bradford-Warren (Western Penna.)	(b)7.30	(b)7.30	(b)7.30	(b)7.30	(b)7.30

(a) For shipment to Texas and New Mexico destinations: Group 3 prices are quoted on northern shipment. (b) One refiner quoting. (c) Two refiners quoting. (d) No quotations reported. (e) Two suppliers quoting.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon except heavy fuel oils in dollars per barrel of 42 gallons, tank car lots, FOB refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Natural Gasoline

(Prices to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

Prices Effective	Oct. 30	Oct. 23
FOB GROUP 3		
Grade 26-70	(l) 4 25	(m) 4 25
FOB BRECKENRIDGE		
Grade 26-70	(l) 4 00 –4 25	(l) 4 25
CALIFORNIA (F.o.b. plants in Los Angeles basin) 75-85, 350-375 e.p. for blending	5 50 – 6 00	5 50 – 6 00

Kerosine

WESTERN PENNA. REFINERS' QUOTATIONS

Bradford-Warren:		
45 grav. w.w.	4 875– 5 00	4 875– 5 00
46 grav. w.w.	(e) 5 375	(e) 5 375
Other districts:		
45 grav. w.w.	4 75 – 5 00	4 75 – 5 00
46 grav. w.w.	5 00 – 5 125	5 00 – 5 125
47 grav. w.w.	5 00 – 5 25	5 00 – 5 25
CENTRAL MICHIGAN (a)		
47-49 gravity w.w.	4 80 – 5 05	4 80 – 5 05
OKLAHOMA		
41-43 grav. w.w.	3 50 – 4 25	3 50 – 4 25
42-44 grav. w.w.	3 625– 4 625	3 625– 4 625
KANSAS (For Kansas destinations only)		
41-43 gravity w.w.	(e) 4 125	(e) 4 125
42-44 gravity w.w.	(e) 4 375	(e) 4 375
N. TEX. (b)		
41-43 grav. w.w.	(e) 4 00	(e) 4 00
E. TEX.		
41-43 grav. w.w.	(e) 3 50	(e) 3 50
N. LA. (For shipment to La. and Ark.)		
41-43 grav. w.w.	(e) 3 75 –4 00	(e) 3 75 –4 00
ARK. (F.o.b. Ark. plant of one refiner for shipment to Ark. and La.)		
41-43 grav. w.w.	4 00	4 00
CALIFORNIA		
40-43 grav. w.w.	4 50 – 6 00	4 50 – 6 00

Gas *and* Fuel Oils

WESTERN PENNA. REFINERS' QUOTATIONS

Bradford-Warren:		
36-40 gravity	(e) 4 625–4 75	(e) 4 625–4 75
Other districts: (Excluding Pittsburgh District Prices)		
36-40 gravity	4 125– 4 375	4 125– 4 375
CENTRAL MICHIGAN (a)		
P.W. Distillate	4 50	4 50
No. 3 gas oil, Str.	4 00 – 4 25	4 00 – 4 25
U.C.L. gas oil	3 50 – 3 75	3 50 – 3 75
Fuel Oils (Vis. at 100):		
500-700 Vis.	(e) 3 00	(e) 3 00
300-500 Vis.	3 00 – 3 25	3 00 – 3 25
100-300 Vis.	(e) 3 25 – 3 50	(e) 3 25 –3 50
OKLAHOMA		
No. 1 P.W.	3 375– 3 75	3 375– 3 75
No. 1 straw	(e) 3 25	(e) 3 25
No. 2 straw	(h) 3 25 –3 375	(h) 3 25 –3 375
No. 2 dark	(h) 3 125–3 25	(h) 3 125 3 25
U.C.L. gas oil	(e) 3 25	(e) 3 25
28-30 grav. zero	3 00 – 3 125	3 00 – 3 125
No. 6	(e $0 45	(e) $0 45
Range oil	3 375– 3 625	3 375– 3 625
KANSAS (For Kans. destinations only).		
No. 1 p.w.	(e) 3 875	(e) 3 875
10-14 gravity	(n)	(n)
No. 6 fuel	(h) $0 50 $0 55	(h) $0 45 $0 55
N. TEX. (b)		
No. 1 P.W.		
E. TEX.		
No. 1 p.w.	(e) 3 375	(e) 3 375
N. LA. (For shipment to La. and Ark.)		
10-14 grav.	(e $0 65 $0 70	(e) $0 65 $0 70
ARK. (F.o.b. Ark. plant of one refiner, for shipment to Ark. and La.)		
No. 2	3 375	3 375
28-30 zero	3 125	3 125
Tractor Fuel	(j) 4 50	(j) 4 50

Prices Effective	Oct. 30	Oct. 23
CALIFORNIA		
San Joaquin Valley:		
Heavy fuel	$0 55 –$0 75	$0 55 –$0 75
Light fuel	$0 75 –$0 85	$0 75 –$0 85
Diesel fuel (per gal.)	2 75 – 4 00	2 75 – 4 00
Stove dist. (per gal.)	3 00 – 5 00	3 00 – 5 00
Los Angeles:		
Heavy fuel	$0 55 –$0 90	$0 55 –$0 90
Light fuel	$0 65 –$1 00	$0 65 –$1 00
Diesel fuel (per gal.)	2 75 – 4 00	2 75 – 4 00
Stove dist. (per gal.)	2 75 – 5 00	2 75 – 5 00
San Francisco:		
Heavy fuel	$0 95	$0 95
Light fuel	$1 05	$1 05
Diesel fuel (per gal.)	4 50	4 50
Stove dist. (per gal.)	5 50	5 50

Note: All above heavy fuels meet Pacific specification 400: light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Neutral Oils

WESTERN PENNA. REFINERS' QUOTATIONS

Important Note: Penna. lube prices reported by refiners as for limited sale to regular customers only.

Viscous Neutrals No. 3 col. (Viscosity at 70° F.)

200 Vis. (180 at 100°) 420-425 fl.

0 p.t.	(e) 33 50	(e) 33 50
10 p.t.	(e) 32 50	(e) 32 50
15 p.t.	(e) 31 50	(e) 31 50
25 p.t.	25 00 –32 00	25 00 –32 00

150 Vis. (143 at 100) 400-405 fl.

0 p.t.	(e) 31 50	(e) 31 50
10 p.t.	(e) 30 50	(e) 30 50
15 p.t.	(e) 29 50	(e) 29 50
25 p.t.	23 00 –28 00	23 00 –28 00

SOUTH TEXAS

Vis. Color		
Pale Oils: (*Vis. at 100°F.*)		
100 No. 1½-2½	5 75 – 6 00	5 75 – 6 00
200 No. 2-3	7 50 – 7 75	7 50 – 7 75
300 No. 2-3	8 00 – 8 25	8 00 – 8 25
500 No. 2½-3½	9 00 – 9 25	9 00 – 9 25
750 No. 3-4	9 50 – 9 75	9 50 – 9 75
1200 No. 3-4	9 875–10 50	9 875–10 50
2000 No. 4	10 00 –10 75	10 00 –10 75
Red Oils:		
200 No. 5-6	7 50 – 7 75	7 50 – 7 75
300 No. 5-6	8 00 – 8 25	8 00 – 8 25
500 No. 5-6	9 00 – 9 25	9 00 – 9 25
750 No. 5-6	9 50 – 9 75	9 50 – 9 75
1200 No. 5-6	9 875–10 50	9 875–10 50
2000 No. 5-6	10 00 –10 75	10 00 –10 75

Note: Red oil prices cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Vis. at 100° F.; F.o.b. Tulsa)

Pale Oils: (0 to 10 P.P.) Vis. Color		
60-85—No. 2	6 50 – 7 00	6 50 – 7 00
86-110—No. 2	6 75 – 7 50	6 75 – 7 50
150—No. 3	11 75 –12 75	11 75 –12 75
180—No. 3	13 00	13 00
200—No. 3	13 50	13 50
250—No. 3	14 50	14 50
280—No. 3	15 50 –16 25	15 50 –16 25
300—No. 3	16 50 –16 75	16 50 –16 75
Red Oils:		
180—No. 5	(e) 12 50	(e) 12 50
200—No. 5	(e) 13 00	(e) 13 00
280—No. 5	(h) 14 75–15 75	(h) 14 75–15 75
300—No. 5	(e) 16 25	(e) 16 25

Note: The following oils, of 15 to 25 p.p., are generally quoted these amounts under 0-10 p.p.; viscous oils, 0.5c; non-viscous, 0.25c. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

CHICAGO (Vis. at 100° F.)

(c) Pale Oils 0 to 10 p.p. Vis. Color		
60-85—No. 2	8 25	8 25
86-110—No. 2	8 50	8 50
150—No. 3	12 75	11 75
180—No. 3	14 00	13 00
200—No. 3	14 50	13 50
250—No. 3	15 50	14 50

Prices Effective	Oct. 30	Oct. 23
CHICAGO (Continued)		
(e) Red Oils:		
180—No. 5	13 50	12 50
200—No. 5	14 00	13 00
250—No. 5	14 50	13 50
280—No. 5	15 50	14 50
300—No. 5	17 25	15 50

Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa)

Bright Stocks:		
100-200 Vis. at 210° D.	(e) 26 00	(e) 26 00
150-160 Vis. at 210° D:		
0 to 10 p.p.	23 00	23 00
10 to 25 p.p.	22 00 –22 50	22 00 –22 50
25 to 40 p.p.	(h) 21 50–22 00	(h) 21 50–22 00
150-160 vis. at 210° E.	21 00 –22 00	21 00 –22 00
120 Vis. at 210° D:		
0 to 10 p.p.	21 625–22 00	21 625–22 00
25 to 40 p.p.	(e) 20 625	(e) 20 625
600 S.R. Dark Green	(e) 8 00	(e) 8 00
600 S.R. Olive Green	9 00	9 00
631 S.R.	(e) 18 00	(e) 18 00
Black Oil	(h) 4 00 – 5 50	(h) 4 00 – 5 50

(e) CHICAGO (Viscosity at 210°)

Unfiltered Steam Refined:		
140	10 00	10 00
160	11 00	11 00
200	12 00	12 00
Bright stocks, 160 vis. at 210. No. 8 color:		
0 to 10 p.p.	24 75	24 75
15 to 25 p.p.	23 75	23 75
30 to 40 p.p.	23 25	23 25
E. filtered Cyl. Stock	14 50	14 50

Note: To obtain prices delivered in Chicago, add 0.25c per gal.

WESTERN PENNA. REFINERS' QUOTATIONS

Important Note: Penna. lube prices reported by refiners as for limited sale to regular customers only.

600 S.R. filterable	14 50 –17 00	14 50 –17 00
650 S.R.	16 00 –20 00	16 00 –20 00
600 fl	16 50 –21 00	16 50 –21 00
630 fl.	20 00 –24 00	20 00 –24 00
Brt. stk. 145-155 vis. at 210°, 340-350 fl., No. 8 col		
10 p.t.	28 00 –33 00	28 00 –33 00
15 p.t.	27 00 –32 00	27 00 –32 00
25 p.t.	24 50 –39 00	24 50 –39 00

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less. One refiner reports he equalizes freight with nearest refinery to destination).

Snow White	7 625	7 625
Lily White	6 50 – 6 625	6 625
Cream White	5 50 – 5 625	5 625
Light Amber	3 75 – 4 125	3 875– 4 125
Amber	3 50 – 3 875	3 625– 3 875
Red	3 125– 3 50	(h) 3 375 3 50

Wax

WESTERN PENNA. REFINERS' QUOTATIONS

In bbls., carloads, N. Y

122-124 A.m.p., w.c. scale	(e) 6 00	(e) 5 50
124-126 A.m.p., w.c. scale	(h) 6 00 –6 25	(h) 5 50

OKLAHOMA (In bbls. or burlap bags, carloads)

124-126 A.m.p., w.c. scale	(h) 5 75 –6 00	(h) 5 50

CHICAGO QUOTATIONS (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)

Fully refined:		
122-124 (bags only)	5 40	4 90
125-127	5 60	5 10
127-129	5 85	5 35
130-132	6 15	5 65
132-134	6 40	5 90
135-137	7 15	6 65

(a) Prices FOB. Central Michigan refinery group basis, for shipment within Mich. Shipments may originate at plants outside Central group. (b) For shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments. (c) Excluding Detroit shipment. (e) One refiner quoting. (f) No quotations reported. (g) To resellers holding licenses. (h) Two refiners quoting. (j) For shipment to Ark. points only. (k) Two suppliers quoting. (l) Quotations. (m) Sales. (n) No quotations reported.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include* 1c *federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see N.P.N for March 29, April 12, April 19 and June 7, 1939, or write to N.P.N. These prices in effect Oct. 30, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Essolene
(Regular Grade)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	7.6	8.7	4	7.6
*Newark, N. J.	7.6	8.7	4	7.6
Annapolis, Md.	8.35	9.35	5	9.50
Baltimore, Md.	7.75	8.75	5	8
Cumberland, Md.	9.15	10.15	5	10
Washington, D. C.	8.0	9	3	9.5
Danville, Va.	8.95	11.45	6	12.9
Norfolk, Va.	7.75	10.25	6	10
Petersburg, Va.	8.05	10.55	6	11.7
Richmond, Va.	8.05	10.55	6	10.7
Roanoke, Va.	9.25	11.75	6	11
Charleston, W. Va.	8.55	11.05	6	12.6
Parkersburg, W. Va.	7.85	9.85	6	11.2
Wheeling, W. Va.	8.85	10.75	6	12.2
Charlotte, N. C.	9.9	11.4	7	11.8
Hickory, N. C.	10.45	11.95	7	12.3
Mt. Airy, N. C.	10.3	11.8	7	12.2
Raleigh, N. C.	9.65	11.15	7	11.5
Salisbury, N. C.	9.95	11.45	7	11.9
Charleston, S. C.	7.75	10.25	7	10.6
Columbia, S. C.	8.6	11.1	7	11.5
Spartanburg, S. C.	9.3	11.8	7	12.2

Discount to undivided dealers on Essolene: thru territory, except New Jersey points, which see in "Note" below: Dealer t.w. price less 0.5c per gal.

*Effective Sept. 14, 1939, S. O. New Jersey posted a minimum retail resale price of 11.9c thru New Jersey.

Note: While the above posted prices continue at Atlantic City and Newark, N. J., dealers will pay a net price of 8.6c per gal. for Essolene. Dealers having pumps marked only, Esso, Essolene and "Standard" White gasoline will pay 8.1c per gal. for Essolene.

Kerosine Discount: 1c off t.w. price for 25 gals., or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(S. O. New York Division)

Socony Mobilgas
(Regular Grade)

	Consumer Tank Car	"Split" Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Metropolitan N.Y.City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	7.6	8.9	*5	8.00
Borough of Richmond (Staten Is.)	7.6	8.9	*5	8.00
Albany, N. Y.	7.5	9.2	5	7.8
Binghamton, N. Y.	8.8	10.4	5	8.80
Buffalo, N. Y.	8.1	9.5	5	7.6
Jamestown, N. Y.	7.7	9.5	5	7.7
Plattsburg, N. Y.	8	10.4	5	8.40
Rochester, N. Y.	8.3	10	5	8.4
Syracuse, N. Y.	8.1	9.5	5	8.30
Bridgeport, Conn.	7.7	8.8	4	7.5
Danbury, Conn.	8.2	9.6	4	8.50
Hartford, Conn.	7.8	9.3	4	7.90
New Haven, Conn.	7.7	8.8	4	8.00
Bangor, Me.	7.8	10	5	8.40
Portland, Me.	7.5	9.3	5	8.00
Boston, Mass.	7.4	9	4	8.00
Concord, N. H.	8.3	10.5	5	8.60
Lancaster, N. H.	9.1	11.5	5	9.40
Manchester, N. H.	8.2	10	5	8.40
Providence, R. I.	7.4	9.3	5	8.00
Burlington, Vt.	8	9.5	5	8.20
Rutland, Vt.	8.4	9.5	5	8.40

**Plus 2% city sales tax computed at time of each sale.

Discount to undivided dealers: 0.5c less than "split" dealer t.w.

Atlantic Refining

Atlantic White Flash Gasoline
(Regular Grade)

	Commercial Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	8	9	5	10
Pittsburgh	8	9.5	5	10.5
Allentown	8	9.5	5	10.5
Erie	8	9.5	5	10
Scranton	8.5	10	5	10.5
Altoona	8	10	5	10.5
Harrisburg	8	9.5	5	10.5
Williamsport	8.5	10	5	10.5
Dover, Del.		9.5	5	10.5
Wilmington		9	5	9.75
Boston, Mass.		9	4	8
Springfield, Mass.		9.5	4	8.2
Worcester, Mass.		9.8	4	8
Fall River, Mass.		9	4	8
Hartford, Conn.		9.3	4	8
New Haven, Conn.		8.8	4	8
Providence, R. I.		9.3	4	8
Atlantic City, N. J.		8.6	4	7.6
Camden, N. J.		8.6	4	7.6
Trenton, N. J.		8.6	4	7.6
Annapolis, Md.		9.35	5	9.5
Baltimore, Md.		8.75	5	8
Hagerstown, Md.		9.85	5	10
Richmond, Va.		10.55	6	10.7
Wilmington, N. C.		10.35	7	10.8
Brunswick, Ga.		10	7	*11
Jacksonville, Fla.		8	8	10.5

*Georgia has kerosine tax of 1c per gal., not included in above price.

Discount to undivided dealers: Dealer t.w. less 0.5c per gal. except in Georgia and Florida, dealer t.w. and undivided dealer price is same.

Discounts: At Scranton, Pa., 1c per gal. voluntary discount allowed to dealers only, effective July 8, 1939.

Kerosine discount: Thru Pennsylvania and Delaware, 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time, effective since Oct. 29, 1936.

S. O. Ohio

Sohio X-70 Gasoline
(Regular Grade)

	Consumer T.W.	†Dividended Dlr.	‡S.S.	Gasoline Taxes	Kerosine T.W.
Ohio, Statewide	11	10	13	5	*12
Akron	11	9	13	5	*8.5
Cincinnati	11	10	12	5	*12
Cleveland	11	10	13	5	*12
Columbus	11	10	12	5	*12
Dayton	11	10	12	5	*12
Marietta	11	9.5	12	5	*12
Portsmouth	11	10	13	5	*12
Toledo	11	9	11.5	5	*12
Youngstown	11	10	12	5	*11.5

Renown Gasoline
(Third Grade)

Ohio, Statewide	11	10	13	5	....
Akron	11	9	11	5	....
Cincinnati	11	10	12	5	....
Cleveland	11	10	13	5	....
Columbus	11	10	12	5	....
Dayton	11	10	12	5	....
Marietta	11	9.5	12	5	....
Portsmouth	11	10	13	5	....
Toledo	11	9	11.5	5	....
Youngstown	11	10	12	5	....

Note: Prices at other Ohio points may be obtained by writing NPN.

*Ohio has kerosine tax of 1c per gal., not included in above prices.

†This price also to authorized agents, exclusive of 0.5c rental.

‡Prices are at company-operated service stations.

Discount to undivided dealers: 0.5c less than divided dealer t.w.

S. O. Kentucky

Crown Gasoline
(Regular Grade)

	Consumer T.W.	Net Dlr.	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	12	9	6	9.5
Lexington, Ky.	13.5	10.5	6	10
Louisville, Ky.	12.5	9.5	6	9
Paducah, Ky.	12.5	9.5	6	9
Jackson, Miss.	12.5	9.5	7	*9.5
Vicksburg, Miss.	12.5	9.5	7	*9
Birmingham, Ala.	13.5	10.5	*8	9
Mobile, Ala.	12.5	9.5	*9	9
Montgomery, Ala.	13.5	10.5	*9	*10
Atlanta, Ga.	13	10	7	*9
Augusta, Ga.	13.5	10.5	7	*9
Macon, Ga.	14	11	7	*9.5
Savannah, Ga.	12.5	9.5	7	*8
Jacksonville, Fla.	11	8	8	8.5
Miami, Fla.	11.5	8.5	8	7
Pensacola, Fla.	12.5	9.5	*9	8.5
Tampa, Fla.	12.5	9.5	8	8.5

Kyso Gasoline
(Third Grade)

Covington, Ky.	10.5	8	6	....
Lexington, Ky.	12	9.5	6	....
Louisville, Ky.	10	7.5	6	....
Paducah, Ky.	10.5	8	6	....
Jackson, Miss.	11	8.5	7	....
Vicksburg, Miss.	11	8.5	7	....
Birmingham, Ala.	11.5	9	*8	....
Mobile, Ala.	10	7.5	*9	....
Montgomery, Ala.	11.5	9	*9	....
Atlanta, Ga.	10.5	8	7	....
Augusta, Ga.	12	9.5	7	....
Macon, Ga.	12	9.5	7	....
Savannah, Ga.	10.5	8	7	....
Jacksonville, Fla.	9.5	7	8	....
Miami, Fla.	10	7.5	8	....
Pensacola, Fla.	10.5	8	*9	....
Tampa, Fla.	11	8.5	8	....

Discounts to all tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month

**Taxes*: In the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Montgomery, Ala. have kerosine taxes of 1c per gal., and Mississippi 0.5c, not included in above prices.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Stanolind	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	11.1	9.1	6.9	4	10
Decatur, Ill.	11.1	8.1	6	4	8.5
Joliet, Ill.	11.1	9.6	8.1	4	10
Peoria, Ill.	11.1	9.6	9.1	4	10
Quincy, Ill.	10.9	9.4	8.5	4	9.8
Indianapolis, Ind.	11.8	10.3	8.9	5	*10.7
Evansville, Ind.	11.6	10.1	9.4	5	*10.5
South Bend, Ind.	11.8	10.3	9.6	5	*10
Detroit, Mich.	9.6	8.1	7.6	4	7.6
Grand Rapids, Mich.	9.5	8	7.5	4	9.7
Saginaw, Mich.	10.8	9.3	8.6	4	9.3
Green Bay, Wis.	11.9	10.4	9.9	5	10
Milwaukee, Wis.	11.3	9.8	9.3	5	10.2
La Crosse, Wis.	11.5	10	9.5	5	10.4
Minneapolis-St. Paul	11.5	10	9.5	5	10.4
Duluth, Minn.	11.9	10.4	9.9	5	10.8
Mankato, Minn.	11.5	10	9.5	5	9.4
Des Moines, Ia.	10.9	9.4	7.4	4	*9.8
Davenport, Ia.	11.1	9.6	8.4	4	*10
Mason City, Ia.	11.3	9.8	6.9	4	*10.2
St. Louis, Mo.	10.7	9.2	7.5	*4	8
Kansas City, Mo.	10.4	8.9	6.9	*4	8
St. Joseph, Mo.	10.4	8.9	8.4	4	7.9
Fargo, N. D.	12.7	11.2	10.7	5	11.6
Huron, S. D.	12	10.5	10	5	10.9
Wichita, Kans.	9.3	6.6	5.5	4	7.4

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax. Kerosine taxes: Indiana has 4c, Iowa 3c per gal. state tax, not included in above prices.

S. O. Nebraska

Standard Red Crown Gasoline
(Regular Grade)

	T.W.	Dealer	Gasoline Taxes	Kerosine T.W.
Omaha, Neb.	10.9	9.4	6	9.8
McCook	10.5	10.2	6	9
Norfolk	11.3	9.8	6	9.5
North Platte	11.8	10.3	6	10
Scottsbluff	12.5	9.5	6	11.4

S. O. Louisiana

Essolene
(Regular Grade)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Little Rock, Ark.	7.75	10.25	7.5	10
Alexandria, La.	7.25	9.75	8	*11.5
Baton Rouge, La.	7.25	9.75	8	*9.5
New Orleans, La.	7.25	9.75	*10	*9
Lake Charles, La.	7.25	9.75	8	*11.5
Shreveport, La.	6	8.5	8	*10
Lafayette, La.	7.5	10	8	*10
Bristol, Tenn.	10.75	12	8	13
Chattanooga, Tenn.	10	12	8	12
Knoxville, Tenn.	10.5	13	8	13
Memphis, Tenn.	8.5	11	8	11
Nashville, Tenn.	9.5	12	8	11

*Taxes: New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana has kerosine tax of 1c per gal.; in addition New Orleans has 1c parish tax, none of which are included in above prices.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Above prices include these inspection fees on both gasoline and kerosine unless otherwise specified, per gallon, figured on basis of 50 gallons per barrel:
Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida 1.8c; Illinois, 3/100c; Indiana, 1/5c per gal. in lots up to 25 bbls.; 2/25c per gal. in lots of 25 bbls. or more; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. lots of more than 50, in bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1.8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 3/100c.
Kerosine inspection fee only: Iowa, 3.50c; Michigan, 1/5c per gal.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes;** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes, where levied, are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for March 29, April 12, April 19 and June 7, 1939, or write to NPN. These prices in effect Oct. 30, 1939, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

Humble Oil & Refining Co.

Humble Motor Fuel
(Regular Grade)

	*T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Dallas, Tex	9	13	5	8
Ft. Worth, Tex	9	13	5	7
Houston, Tex	9	13	5	8
San Antonio, Tex	9.5	14.5	5	8

Thriftane
(Leaded, 67 Octane, Purple Gasoline)

Dallas	7.5	11	5	
Ft. Worth	7.5	11	5	
Houston	7.5	11	5	
San Antonio	8	11.5	5	

U. S. Motor Gasoline
(Third Grade)

Dallas, Tex	7	..	5	
San Antonio, Tex	8	..	5	

*These tank wagon prices apply to all classes of dealers and consumers.

Continental Oil

Conoco Bronz-z-z (Regular Grade)

	††T.W.	Dealer	Gasoline Taxes	Kerosine ‡T.W.
Denver, Col	10.5	..	5	11.5
Grand Junction, Col	13.5	..	5	15
Pueblo, Col	11	..	5	9
Casper, Wyo	12.5	..	5	11.5
Cheyenne, Wyo	10.5	..	5	13
Billings, Mont	12.5	..	6	13
Butte, Mont	14	..	6	15.5
Great Falls, Mont	13.5	..	6	15.5
Helena, Mont	14.5	..	6	15.5
Salt Lake City, Utah	12.5	12.5	5	16
Boise, Ida	**15.1	**15.1	6	18
Twin Falls, Ida	**15.1	**15.1	6	18
Albuquerque, N. M	10.5	10.5	†6.5	10
Roswell, N. M	9	9	†6.5	8
Santa Fe, N. M	10.5	10.5	*7	10
Ft. Smith, Ark	9.5	..	5	7.5
Little Rock, Ark	9.75	..	7.5	8
Texarkana, Ark	9	..		8
Muskogee, Okla	7	..	5	7
Oklahoma City, Okla	6	..	5	6.5
Tulsa, Okla	7	..	5	7.5

Demand Gasoline
(Third Grade)

Denver, Col	9.5	..	5	....
Grand Junction, Col	12.5	..	5	....
Pueblo, Col	10	..	5	....
Casper, Wyo	11.5	..	5	....
Cheyenne, Wyo	9.5	..	5	....
Billings, Mont	11.5	..	6	....
Butte, Mont	11	..	6	....
Great Falls, Mont	11.5	..	6	....
Helena, Mont	13.5	..	6	....
Salt Lake City, Utah	11.5	11.5	5	....
Boise, Ida	**14.1	**14.1	6	....
Twin Falls, Ida	**14.1	**14.1	6	....
Albuquerque, N. M	8.5	8.5	†6.5	....
Roswell, N. M	8	8	†6.5	....
Santa Fe, N. M	9.5	9.5	*7	....
Ft. Smith, Ark	7	..	5	....
Little Rock, Ark	7.5	..	7.5	....
Texarkana, Ark	6.5	..	5	....
Muskogee, Okla	6	..	5	....
Oklahoma City, Okla	5.5	..	5	....
Tulsa, Okla	7	..	5	....

†Includes city tax of 0.5c.
*Includes 1c city tax.
‡Prices are in t.w. deliveries to consumers and dealers.
**Prices include 0.1c to cover 1-mill tax for toll bridges.
††T.w. prices in all states except Utah, Idaho and New Mexico are to consumers and dealers.

S. O. California

Standard Gasoline
(Regular Grade)

	T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
San Francisco, Cal	13.5	14.5	4	11.5
Los Angeles, Cal	13	14	4	10
Fresno, Cal	14.5	15.5	4	12.5
Phoenix, Ariz	14	15	6	*12.5
Reno, Nev	15.5	16.5	5	13.5
Portland, Ore	14	15	6	13.5
Seattle, Wash	14	15	6	†13.5
Spokane, Wash	15.5	16.5	6	†16.5
Tacoma, Wash	14	15	6	†13.5

Flight Gasoline
(Third Grade)

San Francisco, Cal	12	13	4	....
Los Angeles, Cal	11.5	12.5	4	....
Fresno, Cal	13	14	4	....
Reno, Nev	14	15	5	....
Phoenix, Ariz	11	12	6	....
Portland, Ore	12.5	13.5	6	....
Seattle, Wash	12.5	13.5	6	....
Spokane, Wash	13	14	6	....
Tacoma, Wash	12.5	13.5	6	....

*Arizona has kerosine tax of 5c per gal., not included in above prices.

†Washington has 0.25c per gal. tax on kerosine sales, not included in above prices.

Discount to 100% dealers, thru territory, off posted t.w. prices, on gasolines: on Standard Ethyl, Standard Gasoline and Stanavo Aviation, 3c per gal.; on Flight gasoline, 2c.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline
(Regular Grade)

	T.W.	Gasoline Taxes	Kerosine T.W.
Hamilton, Ont	15.5	8	16
Toronto, Ont	15.5	8	16
Brandon, Man	21	7	22
Winnipeg, Man	19.5	7	20.5
Regina, Sask	18.5	7	20.5
Saskatoon, Sask	21	7	23
Edmonton, Alta	18.9	7	20.9
Calgary, Alta	16	7	18
Vancouver, B. C	16	7	23
Montreal, Que	15	8	15.5
St. John, N. B	14.5	10	18.5
Halifax, N. S	14.5	10	18.5

Discounts to undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

Aviation Gasoline

Following are tank car, tank wagon or dealer prices, as indicated, of aviation gasoline in several marketing territories.

S. O. OHIO
Thru Ohio

Esso Aviation

	Consumer T.W.	Gasoline Taxes
74 octane	16	5
80 octane	17	5
87 octane	18	5

Discounts: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA

Stanavo Ethyl Aviation Gasoline
73 Octane Number

Chicago, Ill	14.9	
Detroit, Mich	16.5	4
Milwaukee, Wis	15.1	5
Minneapolis, Minn	15.3	5
St. Louis, Mo	14.5	3
Kansas City, Mo	14.2	*4
Fargo, N. D	16.5	4
Huron, S. D	15.8	5

*Includes 1c city tax.

HUMBLE OIL & REFINING CO.
74 Octane Aviation Gasoline, Clear

	Tank Car
FOB Baytown, Tex	8.5

CONTINENTAL OIL CO.

Conoco Special Gasoline

	T.W. & Dealer Price	Gasoline Taxes
Denver, Colo	15	5
Cheyenne, Wyo	15.5	5
Helena, Mont	22.5	6
Salt Lake City, Utah	18	5
Albuquerque, N. M	14	*6.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA
Stanavo Aviation Gasoline

	T.W.	
Phoenix, Ariz	17.5	6
Los Angeles, Cal	15	4
San Francisco, Cal	15.5	4
Reno, Nev	17.5	5
Portland, Ore	16	6
Seattle, Wash	16	6
Spokane, Wash	19	6

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Naphtha (In Tank Wagon)

S. O. NEW JERSEY

Posted Tank Wagon Prices

	Mineral Spirits	V.M. & P.
Newark, N. J	11.5	15.5
Baltimore, Md	15.5	....
Washington, D. C	15	....

Discounts: Buyers taking following quantities at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y	11.5	12.5
*New York City	9.5	10.5
Rochester, N. Y	12.5	12.5
Syracuse, N. Y	12.5	15
Boston, Mass	11.5	11.5
Bridgeport, Conn	11.5	12
Hartford, Conn	11	11.5
Providence, R. I	11.5	12.5

*Prices apply to consumers only in quantities over 1,000 gals. annually. For quantities under 1,000 gals. annually, add 0.5c per gal.

ATLANTIC REFINING CO.

Philadelphia, Pa	12	14.5
Lancaster, Pa	13.5	16
Pittsburgh, Pa	14.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

Discounts: Philadelphia, 200 gals. or more at one time, 2c per gal. less. Lancaster, contract buyers taking 1,000 gals. or more per year, one drum up, 2c per gal. less; non-contract buyers, 200 gals. or more at one time, 2c per gal. less. Pittsburgh, 500 gals. or more at one time, 2c.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	12.5	13

Note: V.M.&P. naphtha prices also apply on Dry Cleaners naphtha, special Varnolene, Varnolene and Sohio Solvent. Discounts to contract consumers off t.w. price; 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA
(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill	16.2	16.5	15.9
Detroit, Mich	19.2	18.2	19.7
Kansas City, Mo	13.9	14.9	14.4
St. Louis, Mo	14.2	15.2	12.9
Milwaukee, Wis	18.8	19.8	19.3
Minneapolis, Minn.	19	20	17.7

Note: All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9.50	8.50
New York Harbor	9–9.5	8.75–9
Philadelphia district	10	8.25–9
Boston	9.5	9.5
Providence	9.5	9.5
†Ohio points, delivered	8.5	*8

*This is on rubber solvent.
†Ohio prices are those of S. O. Ohio. Its"prices for D.C. naphtha, special Varnolene, Varnolene and Sohio Solvent are same as for V.M.&P.

Price Changes

Dates and amounts of changes. See table for full current prices.

S. O. New Jersey—Essolene:
Correction: Cumberland dealer t. w. has been 10.15c since Sept. 30, 1938, instead of 11.15c, as published since that time, S.O.N.J. announces. This price cut 1c, Aug. 15, 1938, to 10.65c, and 0.5c Sept. 30, 1938, to 10.15c. No changes since.

Socony-Vacuum Oil—Socony Mobilgas:
Consumer t. c. up 0.1c to 0.2c, thru territory, except Western New York and parts of Vermont, Oct. 24. Unchanged were Buffalo, Jamestown and Rochester. Up 0.2c were New York City, Albany, Syracuse, Portland, Manchester; other points published in this table up 0.1c. Concord and Lancaster dealer t. w. up 0.1c, Oct. 24.

Kerosine:
Jamestown t. c. up 0.2c, Rochester up 0.1c, Oct. 23. Buffalo t. w. cut 0.1c, Oct. 24.

Atlantic Refining—White Flash Gasoline:
Worcester commercial t. c. up 0.3c, Oct. 25.

S. O. Louisiana—Kerosine:
Knoxville t. w. cut 1.5c, Oct. 26.

Continental Oil—Conoco Bronz-z-z and Demand:
Boise up 0.5c, Oct. 6.
Oklahoma City cut 1c, Oct. 17.
Tulsa cut 1c, Oct. 18.
Muskogee cut 1c, Oct. 19.

Demand Gasoline:
Great Falls up 1c, Oct. 19.

Kerosine:
Tulsa t. w. up 0.5c, Oct. 19.

Imperial Oil—Canada—3 Star Imperial Gasoline and Kerosine:
T. w. cut 0.3c to 0.5c, thru Alberta and Saskatchewan, Oct. 25. Regina, Edmonton and Calgary cut 0.5c, Saskatoon, 0.3c.
T. w. up 0.5c, thru Quebec, New Brunswick and Nova Scotia, Oct. 26.

Fuel Oil

Socony-Vacuum—Nos. 2, 3 & 4:
Rochester t. w. up 0.1c, Oct. 23.

S. O. New Jersey—Nos. 1, 2 and 4:
T. w. up 0.25c, thru North Carolina, Oct. 11.

(*Continued on page* 51)

Tank Wagon

(Continued from preceding page)

Baltimore and Washington, D. C., t. w. up 0.25c, Oct. 14.

T. w. up 0.35c, thru New Jersey, up 0.25c, thru Virginia and up 0.5c to 0.6c, thru South Carolina, and Annapolis No. 2 fuel up 0.25c, Oct. 20.

Naphtha

Socony-Vacuum Oil — Mineral Spirits & V.M.&P. Naphtha:

T. w. up 0.5c, thru territory, except New York City unchanged and Buffalo mineral spirits up 1c, Oct. 9.

Oklahoma City Regulates Signs

OKLAHOMA CITY—City Council here has passed an ordinance regulating retail gasoline price posting and all forms of retail advertising of motor fuel.

Retailers are required to post a sign not less than eight by eight inches on all pumps. Sign must show the price and state whether taxes are included, kind of gasoline, character, and name of brand. Lettering of the sign shall not be less than three-quarters of an inch high and at least one-eighth of an inch wide.

In all forms of advertising, newspapers, radio, pamphlets or letters, price must be stated and whether the price quoted includes tax, together with the kind, character and name or brand of gasoline.

If the product has no name, it must be labeled "no brand". Octane rating must be given in all forms of advertising. Gasoline manufactured by another party may be sold under a private brand or "no brand" name providing authorization is obtained by seller and is on file at the point of sale.

Coming Meetings

National Motor Truck Show, Navy Pier, Chicago, Nov. 8-16.

American Petroleum Institute, 20th annual meeting, Stevens Hotel, Chicago, Nov. 13-17.

Interstate Conference on Automotive Taxation, Western Division, sponsored by American Petroleum Industries Committee, Stevens Hotel, Chicago, Nov. 13 to 17.

Twenty-five Year Club of Petroleum Industry, first annual meeting and dinner, Stevens Hotel, Chicago, Nov. 14.

American Institute of Chemical Engineers, 32nd annual meeting, Providence-Biltmore Hotel, Providence, R. I., Nov. 15, 16, 17.

California Natural Gasoline Assn., Ambassador Hotel, Los Angeles, Nov. 17.

American Society of Mechanical Engineers, Philadelphia, Pa., Dec. 4 to 7.

17th Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9.

New Jersey Oil Trades Assn., annual meeting and banquet, Robert Treat Hotel, Newark, N. J., Dec. 7.

Petroleum Electric Power Assn., Texas State Hotel, Houston, Tex., Dec. 14, 15.

West Central Texas Oil & Gas Assn., Abilene, Tex., some time in December.

1940

Society of Automotive Engineers, Annual meeting and Engineering Display, Book-Cadillac Hotel, Detroit, Jan. 15 to 19.

Northwest Petroleum Assn., Annual Meetings: North Dakota Division, Gardner Hotel, Fargo, N. D., Jan. 22, 23; Minnesota Division, Nicollet Hotel, Minneapolis, Jan. 25, 26.

American Institute of Mining and Metallurgical Engineers, New York, Feb. 12 to 15.

Kentucky Petroleum Marketers Assn., 14th annual meeting and convention, Brown Hotel, Louisville, Ky., Feb. 14, 15.

Wisconsin Petroleum Assn., annual meeting and equipment show, Schroeder Hotel, Milwaukee, Feb. 21, 22, 23.

Ohio Petroleum Marketers Assn., Deshler-Wallick Hotel, Columbus, O., Feb. 27, 28 and 29.

Iowa Independent Oil Jobbers' Assn., annual meeting, Hotel Fort Des Moines, Des Moines, March 2-7.

American Society for Testing Materials, Statler Hotel, Detroit, Mich., March 4-8.

American Petroleum Institute, Mid-Continent District, Division of Production, Wichita, Kan., March 14, 15.

American Petroleum Institute, Southwestern District, Division of Production, Houston, Tex., March 28, 29.

American Chemical Society, Cincinnati, Ohio, April 8-12.

American Assn. of Petroleum Geologists, Stevens Hotel, Chicago, April 10, 11, 12.

American Petroleum Institute, Eastern District, Division of Production, Columbus, O., April 11, 12.

National Petroleum Assn., 37th semi-annual meeting, Hotel Cleveland, Cleveland, O., April 18, 19.

Petroleum Industry Electrical Assn., Dallas, Tex., May 1 to 3.

Natural Gasoline Assn. of America, 19th annual convention, Hotel Tulsa, Tulsa, May 15, 16, 17.

Oil Marketing Concern Is Burner Distributor

CHICAGO—Braun Bros. Oil Co. of Winnetka, Ill., has been appointed a retail sales representative by Williams Oil-O-Matic Heating Corp. The oil company will distribute this line of oil heaters throughout metropolitan Chicago, except River Forest, where Suburban Oil Co. is the burner company's representative. All the personnel of Williams retail sales organization in Chicago has been taken into Braun Bros. sales and service organization.

TANK WAGON MARKETS. HEATING OILS

Prices in Effect Oct. 30, 1939

Following are posted tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 4
S. O. NEW JERSEY			
Atlantic City, N. J.	7.6	6.6	6.6
Newark	7.6	6.6	6.6
Annapolis, Md.		6.75	
Baltimore	7.25	6.75	6.25
Washington, D. C.	7.5	7	7
Norfolk, Va.	7.25	6.25	6.25
Petersburg	7.5	6.5	
Richmond	7.5	6.5	6.5
Charlotte, N. C.	9	7.75	
Hickory		8.25	
Raleigh	9	7.5	
Charleston, S. C.	8	6.5	
Columbia	9	7.5	
Spartanburg	9.7	8.2	
SOCONY-VACUUM OIL CO. INC. (S. O. New York Division)		**Nos. 2 & 3**	**No. 4**
New York City		6.50	6.50
Albany, N. Y.		6.70	6.20
Rochester, N. Y.		7.70	7.70
Boston, Mass.		6.70	6.70
Bangor, Me.		7.10	7.10
Manchester, N. H.		7.30	7.30
Burlington, Vt.		7.40	7.40
Hartford, Conn.		6.80	6.80
New Haven, Conn.		6.70	6.70
Providence, R. I.		6.70	6.70

Note: Prices for No. 1 fuel in Socony-Vacuum territory same as for kerosine which see in tank wagon table for various cities; prices change with kerosine.

ATLANTIC REFINING

	Numbers 1	2	3	4	5	6
Phila., Pa.	7.75	6.25	6.25	6.25	4.00	3.25
Allentown, Pa.	8.5	6.25	6.25	6.25	.....	.....
Wilmington, Del.	7.75	6.25	6.25	6.25	.....	.....
Springfield, Mass.	8.2	7.2	.....	.....	.....	.....
Worcester, Mass.	8	7	.....	7	.....	.....
Hartford, Conn.	8	6.8	.....	6.8	.....	.....

S. O. OHIO	**No. 1**	**No. 2**	**No. 3**
Columbus Division and Cleveland	7.50	7.50	7.00
City of Lima	8.00	8.00	7.00
Rest of Ohio	8.00	8.00	7.50

Note: S. O. Ohio prices are for full compartment hose dumps, bucket dumps are 0.5c per gallon higher.

S. O. INDIANA Stanolex Fuel and Furnace Oils	**No. 1 Fuel**	**Stanolex Furnace**
Chicago	(a)6.75	6.75
Indianapolis	....	(b)7.8
Detroit	....	6.6
Milwaukee	8.4	7.7
Minneapolis	7.8	7.8
St. Louis	7.7	(c)6.7
Kansas City	6.8	6.8

(a) For 400 gals. and over; 150 to 399 gals., 7.25c; 1 to 149 gals., 8.25c.

(b) Excluding 4c state tax.

(c) For 400 gals. & over; 100 to 399 gals., 7c; 1 to 99 gals., 8c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline-Kerosine		Distillate-Gas Oil-Fuel Oil	
	Cents per Cwt.	Cents per gal. 6.6 lbs.	Cents per Cwt.	Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	53	3.498	42	3.108
Detroit, Mich.	64	4.224	51	3.774
Gd. Rapids, Mich.	62	4.092	50	3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Min'ap'ls-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*4.95	7.5	†5.55
From Tulsa	12.5	*8.25	12.5	†9.25
From Cushing	11	*7.26	11	†8.14

*This rate also includes distillate rate at 6.6 lbs. per gal.

†This rate is exclusive of diatillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD MARKETS, EXPORT AND COASTWISE

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Atlantic Coast Refiners' & Tanker Terminal Operators' Quotations (FOB Refineries & Terminals)

MOTOR GASOLINE

Prices Effective Oct. 30

District:	60-64 Oct.	65 Oct.	65 Oct. & Above	68-70 Oct.	72-74 Oct.
N. Y. harbor	(m)6.70	6.75 – 7.00	6.75 – 7.00	6.75 – 7.00	6.75 – 7.60
(a) N. Y. harbor	(m)6.70	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	(r) 6.65 – 7.20
Philadelphia	6.25 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 6.75	6.50 – 8.00
Baltimore	(r) 6.25 – 6.75	6.25 – 7.00	6.25 – 7.00	(r) 6.50 – 6.75	6.75 – 7.75
Norfolk	(r) 6.625–6.875	(r) 6.75 – 7.00	(r) 6.75 – 7.00	(r) 6.75 – 7.25	(r) 7.50 – 7.75
Wilm'ton	6.50 – 6.875	6.50 – 7.00	(r) 6.75 – 7.00	6.75 – 7.25	7.00 – 7.85
Char'ston	6.625– 6.875	(r) 6.75 – 7.00	(r) 6.75 – 7.00	(r) 7.00 – 7.25	7.50 – 7.55
Savannah	6.50 – 7.125	6.50 – 7.00	(r) 6.50 – 7.00	(r) 6.75 – 7.50	7.00 – 7.25
Jacksonville	6.50 – 6.875	6.50 – 7.00	(r) 6.50 – 7.00	(r) 6.75 – 7.25	7.00 – 7.25
Miami	(n) 6.625–6.875	(m)7.00	(m)7.00	(m) 7.00 – 7.25	(m)7.25
Tampa	(p) 6.50 – 6.875	(m)7.00	(m)7.00	(m) 7.00–7.25	(r)7.25
Pensacola	(n) 6.625–6.875			(m) 7.00 – 7.25	
Mobile	(p) 6.00 – 6.50	(m)6.50	(m)6.50	(m) 6.75 – 7.00	(r)6.75
Portland		(m)7.10	(r) 7.10 – 7.50		7.50
Boston	6.50 – 7.15	6.75 – 7.05	6.75 – 7.15	(r) 6.75 – 7.00	6.75 – 7.10
Providence	6.80 – 7.15	(r) 7.00 – 7.05	7.00 – 7.15	(m)7.00	7.00 – 7.10

WATER WHITE KEROSINE

District:			
N. Y. harbor	5.10	Jacksonville	5.25-5.375
(n)N. Y. harb	5.00	Miami	(r)5.25-5.375
Phila	5.25	Tampa	5.25-5.375
Baltimore	5.25	Pensacola	(m)5.25-5.375
Norfolk	5.25 – 5.375	Mobile	(r) 5.125-5.375
Wilm'ton, N. C.	5.25 – 5.50	Portland	5.10
Charleston	5.25 – 5.375	Boston	5.20
Savannah	5.25 – 5.375	Providence	5.20

FUEL OILS

	N. Y. harb.	N. Y. harb. barges
No. 1	5.10	5.00
Nos. 2-3	4.60	4.50 – 4.75
No. 4	4.60	4.50
No. 5	$1.35 – $1.65	
No. 6	$1.15	

	Phila. dist.	Balt. dist.
No. 1	5.25	5.25
Nos. 2-3	4.50	4.50
No. 4	4.25 – 4.50	4.25 – 4.50
No. 5	$1.35 – $1.57	$1.35
No. 6	$1.15	$1.15

	Bost. dist.	Prov. dist.
No. 1	5.20	5.20
Nos. 2-3	4.70	4.70
No. 4	4.70	4.70
No. 5	$1.45	$1.40
No. 6	$1.15	$1.15

District:	(c) Bunker C Fuel	(c) Diesel Oil
N. Y. harbor	$1.15	$1.90
Philadelphia	$1.15	$1.90
Baltimore	$1.15	$1.90
Norfolk	$1.15	$1.90
Charleston	$1.10	$1.90
Savannah	$1.10	$1.995
Jacksonville	$1.10	$1.995
Tampa	$1.05 – $1.10	$1.995
Portland	$1.15	$2.00 – $2.20
Boston	$1.15	$1.90
Providence	$1.15	$1.90

	Diesel Oil Shore Plants	Gas Oil 28-34 Gravity
N. Y. harbor	4.60	4.60 – 4.80
Philadelphia	4.50	4.50
Baltimore	4.50	4.50
Norfolk	4.50	4.50
Charleston	4.50	4.50
Jacksonville		
Tampa		
Portland	4.90	4.90 – 5.00
Boston	4.70	4.70 – 4.80
Providence	4.70	4.70 – 4.80

Pacific Export

(e) (Quotations at seaboard, Los Angeles, cargo lots, cents per gal., except where otherwise noted.)

Prices Effective	Oct. 30	Oct. 23
U. S. Motor, under 65 octane	5.75 – 6.25	5.75 – 6.25
400 e.p. blend, 65 oct. min.	6.00 – 6.50	6.00 – 6.50
390 e.p. blend, 66 oct.	6.125– 6.625	6.125– 6.625
390 e.p. blend, 68 oct.	6.25 – 6.75	6.25 – 6.75
375 e.p. blend, 70 oct.	6.375– 6.875	6.375– 6.875
(d) 38-40 gravity, w.w. kerosine	4.25 – 5.00	4.25 – 5.00
41-43 grav., w.w. kero.	4.50 – 5.00	4.50 – 5.00
44 grav., w.w. kero.	5.00 – 5.50	5.00 – 5.50
Cargo lots, per bbl.		
Diesel fuel, 24 & above	$1.25 –$1.35	$1.25 –$1.35
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
(f) 30-34 grav., diesel (gas oil)	$1.35 –$1.45	$1.35 –$1.45
(g) Grade C fuel	$0.60 –$0.65	$0.60 –$0.65

Prices effective	Oct. 30	Oct. 23
In Ships' Bunkers, or deep tank lots, per bbl.:		
(f) Diesel fuel	$1.35 –$1.45	$1.35 –$1.45
(g) Grade C fuel	$0.70 –$0.90	$0.70 –$0.90
Cased Goods: (Per case)		
U. S. M.	$1.45 –$1.55	$1.45 –$1.55
400 e.p. blend, under 65 oct.	$1.50 –$1.60	$1.50 –$1.60
375-400 e.p. blend, 65 oct. & above	$1.69 –$1.70	$1.60 –$1.70
(d) 40-43 grav., w.w. kero	$1.40 –$1.50	$1.40 –$1.50
Kero., p.w.	$1.35 –$1.45	$1.35 –$1.45

New York Export Quotations

(Cents per gal. in bbls. FAS New York)

CYLINDER OILS (Penna. Products)

Bright stock:		
Light, 25 p.t.	(p) 42.00–43.00	31.50 –43.00
Neutral oil:		
200 3 color, 25 p.t.	(n)42.00	32.00 –42.00
150 3 color, 25 p.t.	(p) 40.00–42.00	30.00 –42.00
600 s.r., unfilt.	(p)26.00	21.50 –26.00
650 s.r., unfilt.	(p) 28.50–29.00	23.00 –29.00
600 fl. s.r.	(p) 30.00–30.50	23.50 –30.50
630 fl., s.r.	(p)34.00	27.00 –34.00

Seaboard Wax Quotations

(A.S.T.M. Tests. Melting points, however, are A.M.P., 3° higher than E.M.P. Export prices, FAS, c.l. Domestic prices, FOB, refr'ies., in bags, c.l., with 0.2c discount allowed for shipment in bulk, except where noted. Scale solid; fully refined slabs in bags)

Prices Effective	Oct. 30	
	New York	
	Domestic	Export
124-6 Y.C. scale	(o)	(n)5.70
122-4 W.C. scale	(o)	(o)
124-6 W.C. scale	(o)	(n)5.75
123-5 Fully rfd.	(n)5.05	(o)
125-7 Fully rfd.	(n)5.20	(n)6.50
128-30 Fully rfd.	(h&n)5.60	(n)6.75
130-2 Fully rfd.	(h&n)5.85	(n)7.00
133-5 Fully rfd.	(h&n)6.15	(n)7.50
135-7 Fully rfd.	(h&n)6.40	(n)8.50
	New Orleans	
	Domestic	Export
124-6 Y.C. scale	(o)	(n)5.70
122-4 W.C. scale	(o)	(o)
124-6 W.C. scale	(o)	(p) 5.75 –6.00
123-5 Fully rfd.	(o)	(o)
125-7 Fully rfd.	(o)	(n)6.50
128-30 Fully rfd.	(o)	(n)6.75
130-2 Fully rfd.	(o)	(n)7.00
133-5 Fully rfd.	(o)	(n)7.50

Gulf Coast Bulk

(FOB ship at Gulf for domestic and export; min. 20,000 bbls.)

Prices quoted by GCRA refiners follow:

	Oct. 30
GCRA Motor Fuel	
65 octane (CFR) unleaded	6.25 – 6.50
68 octane (CFR) unleaded	(p) 6.375–6.50
70 octane (CFR) unleaded	(n)6.50
72-74 octane (CFR) unleaded	(o)
72-74 octane (CFR) leaded	6.50 – 6.625
GCRA Kerosine & Gas Oils	
Kerosine	(p)4.50 –4.75
43 or below diesel index gas oil	(n)4.00
43-47 diesel index gas oil	(p) 4.00 –4.125
48-52 diesel index gas oil	4.25 – 4.375
53-57 diesel index gas oil	(p) 4.375 4.50
58 & above	(p)4.50 –4.75

Prices quoted by refiners for other products follow:

MOTOR GASOLINE

Oct. 30

	60-62 Gravity, 400 e.p.	61-63 Gravity, 390 e.p.	64-66 Gravity, 375 e.p.
60 oct.	5.75–6.00	(n)6.125	(n)6.25
65 oct.	6.00 –6.50	(n)6.50	(n)6.625
68 oct.	6.25 –6.75	(n)6.75	(n)6.875
72-74 oct.	6.00 –6.75	(n)6.75	(n)6.875

KEROSINE

	Oct. 30	Oct. 23
41-43 grav. w.w.	4.25 – 4.875	(p) 4.25 –4.875

GAS OILS

Gas Oil (i):		
Below 43 diesel index	(n)4.00	(o)
43-47 diesel index	(n)4.125	(o)
48-52 diesel index	4.25 – 4.50	(p) 4.25 –4.50
53-57 diesel index	(p) 4.375–4.75	(n)4.75
58 & above	(n)4.50	(o)

LIGHT FUEL OILS

No. 2	4.00 – 4.125	4.00 – 4.125

DIESEL and BUNKER OILS

(c) Diesel Oil	$1.70 –$1.75	$1.70 –$1.75
(c) Grade C bunker oil	$0.90 –$1.00	$0.90 –$1.00
Grade C bunker oil, cargoes	$0.90 –$1.00	$0.95 –$1.00

MID-CONTINENT LUBES

(Cents per gal. at Gulf; in bbls., FAS.; in bulk, FOB terminals)

	Oct. 30	
	Barrels	Bulk
190-200 vis. D. 210 brt. stock	(n)32.50	(n)27.80
200 vis. E 200 brt. stock	(n)31.50	(n)26.80
150 vis. D 210 brt. stock 0-10 p.p.	(p) 29.50–31.00	(p) 24.80–26.00
15-25 p.p.	(p) 28.50–30.00	(p) 23.80–25.00
150 vis. E 210 brt. stock	(n)28.50	(n)23.80
100 vis. D 210 brt. stock 0-10 p.p.	(n)28.50	(n)23.80
15-25 p.p.	(n)27.50	(n)22.80
200 vis. No. 3 col. neutral:		
0-10 p.p.	(n)20.00	(n&s)15.30
15-25 p.p.	(n)19.50	(n&s)14.80
180 vis. No. 3 col. neutral:		
0-10 p.p.	(n)19.50	(n&s)14.80
15-25 p.p.	(n)19.00	(n&s)14.30

SOUTH TEXAS LUBES

(Vis. at 100° cold test 0, bulk export shipment, FOB terminals.)

	Oct. 30	Oct. 23
Unfiltered Pale Oils:		
Vis. Color		
100 No. 3	5.75 – 6.00	5.75 – 6.00
200 No. 3	7.50 – 8.00	7.50 – 8.00
300 No. 3	8.00 – 8.50	8.00 – 8.50
500 No. 3½	9.00 – 9.50	9.00 – 9.50
750 No. 4	9.50 –10.00	9.50 –10.00
1200 No. 4	9.875–12.00	9.875–12.00
2000 No. 4	10.00	10.00
Red Oils:		
Vis. Color		
100 No. 5-6	5.75 – 6.00	5.75 – 6.00
200 No. 5-6	7.50 – 8.00	7.50 – 8.00
300 No. 5-6	8.00 – 8.50	8.00 – 8.50
500 No. 5-6	9.00 – 9.50	9.00 – 9.50
750 No. 5-6	9.50 –10.00	9.50 –10.00
1200 No. 5-6	9.875–12.00	9.875–12.00
2000 No. 5-6	10.00	10.00

Note: Red oil prices cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate freight rates. To Continental ports, shillings per ton of 2240 lbs., British sterling; to U. S. ports cents per bbl.)

Rates Effective Oct. 30, 1939

	Crude & /or Fuel		Refined Oil & / or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Gulf-U.K. /Cont.(k)	(q	(q)	(q)	(q)
Aruba-U.K. /Cont.	(q	(q)	(q)	(q)
Gulf-N. Atlantic (l (not E. of N.Y.): Hvy. Crude & fuel, (10 to 19.9 gravity)	30c	33 to 35c		
Light Crude, (30 Grav. or Lighter)	27c	30 to 32c		
Gasoline			31c	31-32c
Kerosine			33c	33-34c
Light Fuel			35c	35-36c

(a) In barge lots. (c) Ships' bunkers. Lighterage, additional at some points, not included. (d) 150 fire point. (e) For San Francisco cargo prices, add 5c per bbl. to cargo prices shown above. (f) Pacific Specification 200. (g) Pacific Specification 400. (h) Shipment in bags or in bulk. (i) Less than ½ of 1% sulfur. (j) Second-hand barrels. (k) Continental ports in range between Bordeaux and Hamburg, both inclusive. (l) Venezuela loading, same rate: Tampico, 2c to 3c per bbl. additional. (m) One supplier quoting. (n) One refiner quoting. (o) No quotations reported. (p) Two refiners quoting. (q) No rates reported. (r) Two suppliers quoting. (s) These prices correct also for Oct. 23.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency
(Effective Oct. 6, 1939, except Corning Jan. 24, 1939)

Penna. Grade Oil in Southwest Penna. Pipe Lines $1.90
Penna. Grade Oil in Eureka Pipe Lines (West Virginia) $1.84
Corning Oil in Buckeye Pipe Lines (Ohio) $1.02

Posted by Other Companies

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective Oct. 6, 1939) $2.25
*The Pennzoil Co.: (Effective Oct. 6, 1939)
Penna. Grade Oil in National Transit Lines *2.18
*The Pennzoil Co. posts $2.18 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields, prices in other lower districts range down to $2.13 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.
(Effective Oct. 9, 1939)

Midland, Midland County $1.02
Sherman $0.97
Clare-Freeman $0.97

Posted by Simrall Corp.
(Effective Oct. 9, 1939)

Crystal, Greendale, Porter and Wise $1.02
Beaverton, Buckeye, Bentley, Edenville $1.00
Freeman and Redding $0.97
West Branch, Arenac, and equal grades $0.82

Posted by Sohio Corp. (Michigan Division)
(Effective Oct. 9, 1939)

Allegan and Kent Counties $1.03
Van Buren County $0.98

Posted by Bay Pipe Line Corp.
(Effective Oct. 9, 1939)

Bentley and Buckeye $1.00
Saginaw and Wise $1.02
Clare $0.76

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.
(Effective June 8, 1939)

Illinois and Western Indiana $0.95
Illinois Basin $1.05

Posted by Sohio Corp.

Illinois Basin:
(Effective Oct. 21, 1939)
Salem (Lake Centralia) $1.05
(Effective June 8, 1939)
Balance of Illinois Basin $1.05
(Effective Oct. 10, 1939)
Griffin (Ind.) pool, sand wells $0.95
Griffin (Ind.) pool, McCloskey lime $0.85

Posted by Carter Oil Co.
(Effective June 10, 1939)

Louden, Fayette County, Ill. $1.05

Posted by Ashland Oil & Transportation Co.
(Effective June 9, 1939)

Somerset Oil in Ashland Lines, Kentucky:
Big Sandy River $1.02
Kentucky River $1.10

Posted by Stoll Oil Refining Co.
(Effective June 10, 1939)

Stoll Pipe Line Oil (Ky.) $0.90

Posted by Fordsville Gathering Line, Inc.
Western Kentucky
(Effective June 9, 1939)

Birk City Area $0.90
Owensboro Area $1.00
Corydon Area (Henderson) $0.90

CANADIAN FIELDS

Posted by Imperial Oil Limited.
Western Ontario
(Effective Oct. 25, 1938)

Petrolia $1.90
Oil Springs $1.97

Alberta–Turner Valley
(Prices f.o.b. field tankage)
(Effective Jan. 5, 1938)

Crude Oil		Crude Oil	
40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above $2.14

Absorption Gasoline	
90% Rec., 20 lb. Reid v.p.	$1.94
90% Rec., 17 lb. Reid v.p.	$2.08

MID-CONTINENT

Oklahoma-Kansas
*(For effective dates, see footnote)

	S. O. Indiana	Carter Mag-nolia	Shell	Conti-nental Texas Co.	Sin-clair Prairie
Below 21°	$0.70	$0.60	....	....	....
21-21.9	.72	.63	....	....	....
22-22.9	.74	.66	....	....	....
23-23.9	.76	.69	....	....	....
24-24.9	.78	.72	....	....	....
25-25.9	.80	.75	....	....	$0.58
26-26.9	.82	.78	....	....	.63
27-27.9	.84	.81	....	....	.68
28-28.9	.86	.84	$0.86	....	.73
29-29.9	.88	.87	.88	....	.78
30-30.9	.90	.90	.90	....	.82
31-31.9	.92	.92	.92	....	.86
32-32.9	.94	.94	.94	....	.90
33-33.9	.96	.96	.96	....	.96
34-34.9	.98	.98	.98	....	.98
35-35.9	1.00	1.00	1.00	1.00	1.00
36-36.9	1.02	1.02	1.02	1.02	1.02
37-37.9	1.04	1.04	1.04	1.04	1.04
38-38.9	1.06	1.06	1.06	1.06	1.06
39-39.9	1.08	1.08	1.08	1.08	1.08
40 & above	1.10	1.10	1.10	1.10	1.10

*Effective in 1938 by Carter Oil, Oct. 13, posting in Okla. only; Continental Oil Oct. 11, with lowest grade below 29; Magnolia, Oct. 12, posting in Okla. only; Shell, Oct. 22; S. O. Indiana, Oct. 17; The Texas Co., Oct. 12. Aug. 31, 1939, by Sinclair Prairie.

North-North Central and Central Texas
*(For effective dates, see footnote)

	Stano-lind	Sinclair Texas Co. Conti-nental	Magnolia
Below 21°	$0.60	....	
21-21.9	.62	....	
22-22.9	.64	....	
23-23.9	.66	....	
24-24.9	.68	$0.79	
25-25.9	.70	for	
26-26.9	.72	oil	
27-27.9	.74	below	
28-28.9	.76	29°	
29-29.9	.78	.81	
30-30.9	.80	.83	
31-31.9	.82	.85	
32-32.9	.84	.87	
33-33.9	.86	.89	
34-34.9	.88	.91	
35-35.9	.90	.93	
36-36.9	.92	.95	
37-37.9	.94	.97	
38-38.9	.96	.99	
39-39.9	.98	1.01	
40 & above	1.00	1.03	

*Effective Oct. 11, 1938 by Continental, in North Tex.; Oct. 12, 1938, by Texas Co. in North & North Central Texas. Texas Co.'s lowest grade is 28-28.9, at $0.79; by Magnolia, Dec. 3, 1938, in N. and N. Central Texas; Oct. 5, 1939 by Sinclair Prairie in Mexia and N. Cent. Texas.

Jefferson County, Texas—Beaumont

(Posted by Magnolia Petroleum Co., Effective Oct. 2, 1939, and by Stanolind Oil & Gas Co., for West Beaumont, Effective Oct. 2, 1939)

Below 20°	$0.86	30-30.9	$1.08
20-20.9	.88	31-31.9	1.10
21-21.9	.90	32-32.9	1.12
22-22.9	.92	33-33.9	1.14
23-23.9	.94	34-34.9	1.16
24-24.9	.96	35-35.9	1.18
25-25.9	.98	36-36.9	1.20
26-26.9	1.00	37-37.9	1.22
27-27.9	1.02	38-38.9	1.24
28-28.9	1.04	39-39.9	1.26
29-29.9	1.06	40 & above	1.28

TEXAS FIELDS

Posted by Humble Oil & Refining Co.
**West Central Texas*
(Effective Aug. 11, 1939)

24-24.9	$0.71	33-33.9	$0.89
25-25.9	.73	34-34.9	.91
26-26.9	.75	35-35.9	.93
27-27.9	.77	36-36.9	.95
28-28.9	.79	37-37.9	.97
29-29.9	.81	38-38.9	.99
30-30.9	.83	39-39.9	1.01
31-31.9	.85	40 & above	1.03
32-32.9	.87		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young Counties.

Effective Aug. 29, 1939, Shell posted in Fisher county, Tex., prices 3c lower than Humble's West Central Texas prices; Shell's schedule begins with below 25, at $0.68 and ends with 40 & above, at $1.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

**East Central Texas*
(Effective Aug. 11, 1939)

23-23.9	$0.78	32-32.9	$0.96
24-24.9	.80	33-33.9	.98
25-25.9	.82	34-34.9	1.00
26-26.9	.84	35-35.9	1.02
27-27.9	.86	36-36.9	1.04
28-28.9	.88	37-37.9	1.06
29-29.9	.90	38-38.9	1.08
30-30.9	.92	39-39.9	1.10
31-31.9	.94	40 and above	1.12

Posted by Pan American Pipe Line Co.
(Effective Oct. 2, 1939)

Cayuga, Anderson county $0.78
*Including Anderson, Cherokee, Limestone, Navarro counties.

PANHANDLE TEXAS

	Humble (Aug. 11, 1939)		Texas Co. (Oct. 2, 1939)	
	Gray County	Carson-Hutchin-son	Sweet	Sour
28-28.9	$0.72	$0.67	....	....
29-29.9	.74	.69	....	....
30-30.9	.76	.71	....	....
31-31.9	.78	.73	....	....
32-32.9	.80	.75	....	....
33-33.9	.82	.77	....	....
34-34.9	.84	.79	$0.84	$0.79
35-35.9	.86	.81	.86	.81
36-36.9	.88	.83	.88	.83
37-37.9	.90	.85	.90	.85
38-38.9	.92	.87	.92	.87
39-39.9	.94	.89	.94	.89
40 & above	.96	.91	.96	.91

Effective Aug. 31, 1939, Sinclair Prairie met Humble in Panhandle Texas. Dec. 3, 1938, Magnolia posted same schedule as Humble.

***EAST TEXAS**

By Humble, Shell, Sinclair-Prairie, Stanolind, Gulf, Magnolia, Texas Co., Tide Water-Associated $1.10
*Effective dates: Aug. 11, 1939, by Humble and Tide Water-Associated; Aug. 29, 1939, by Stanolind, Oct. 2, 1939 by Sinclair Prairie; Oct. 5, 1939 by Shell; Oct. 12, 1938, by Magnolia, Texas Co.; Oct. 13, 1938, by Gulf.
*Includes Cherokee, Gregg, Rusk, Smith and Upshur counties.

Posted by Shell Oil Co., Inc.
(Effective Oct. 5, 1939)

Polk County, Tex. (Livingston and Schwab-Wilcox areas) $1.10

NORTHEAST TEXAS

(Posted by Humble, Oct. 2, 1939)

Talco $0.65

(Posted by Magnolia, Oct. 12, 1938)

Cass County and Panola County, Tex.:
Magnolia posts below 25° at $0.73, plus 2c differential for each degree, to top grade of 40 & above, at $1.05.

(Posted by The Texas Co., Oct. 12, 1938)

Cass County $1.05

WEST TEXAS and NEW MEXICO

(a) (For effective dates, see footnote)

	Humble	Stano-lind	Shell	Texas Co. Sinclair (c)
Below 20°	$0.53	....	$0.53	....
20-20.9	.55	....	.55	....
21-21.9	.57	....	.57	....
22-22.9	.59	$0.67	.59	....
23-23.9	.61	for	.61	....
24-24.9	.63	oil	.63	....
25-25.9	.65	Below	.65	$0.65
26-26.9	.67	26°	.67	.67
27-27.9	.69	.69	.69	.69
28-28.9	.71	.71	.71	.71
29-29.9	.73	.73	.73	.73
30-30.9	.75	.75	.75	.75
31-31.9	.77	.77	.77	.77
32-32.9	.79	.79	.79	.79
33-33.9	.81	.81	.81	.81
34-34.9	.83	.83	.83	.83
35-35.9	.85	.85	.85	.85
36-36.9	.87	.87	.87	.87
37-37.9	.89	.89	for	for
38-38.9	.91	.91	oil	oil
39-39.9	.93	.93	36° &	36° &
40 & above	.95	.95	above	above

Posted by Magnolia Petroleum Co.
(Effective Oct. 12, 1938 in West Texas; Oct. 15, 1939 in Lea County, N. Mex.)

	West Texas	N. Mex.		West Texas	N. Mex.
Below 25	$0.63	$0.63	33-33.9	$0.81	$0.81
25-25.9	.65	.65	34-34.9	.83	.83
26-26.9	.67	.67	35-35.9	.85	.85
27-27.9	.69	.69	36-36.9	.87	.87
28-28.9	.71	.71	37-37.9	.89	for
29-29.9	.73	.73	38-38.9	.91	oil
30-30.9	.75	.75	39-39.9	.93	36 &
31-31.9	.77	.77	40 & over	.95	above
32-32.9	.79	.79			

Note: Magnolia's West Texas postings are in Crane, Glasscock, Howard, Mitchell, Upton and Winkler counties.

Pecos County, West Texas
(Posted by Humble Aug. 11, 1939 and Shell, Aug. 29 '39)

Pecos $0.78
Yates Shallow Pool (Shell only) ..... .65

Posted by Sinclair Prairie Oil Marketing Co.
(Effective Aug. 31, 1939)

Eddy county, N. Mex. $0.77

(a) Effective Aug. 11, 1939 by Humble; Shell Oil, Aug. 29, 1939; by The Texas Co., Oct. 12, 1938; Stanolind, Aug. 29, 1939; Sinclair Prairie, Aug. 31, 1939.

(c) Texas Co. posts $0.65 for below 26; Sinclair Prairie, $0.63 for below 25.

Note: Humble's postings are in these counties: Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler and Yoakum, West Texas; and Lea county, N. Mex.; Shell, in Crane, Ector, Glasscock, Howard, Upton, Winkler, Yoakum, Lea; Stanolind in Hendrick and Henderson field, Winkler county; Texas Co. in Ward, Winkler and Lea.

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Artesia, Jackson and Maljamar pools, New Mexico: gravity schedule beginning with 25 below 29, at $0.61; 29-29.9, at $0.63; plus 2c differential for each gravity, up to 40 & above, at $0.85.

COLORADO

Posted by Continental Oil Co
(Effective Oct. 11, 1938)
Ft. Collins and Wellington

Below 29	$0.81	35-35.9	$0.95
29-29.9	.83	36-36.9	.97
30-30.9	.85	37-37.9	.99
31-31.9	.87	38-38.9	1.01
32-32.9	.89	39-39.9	1.03
33-33.9	.91	40 & above	1.05
34-34.9	.93		

Canon City and Florence, Col $0.90

SOUTH and SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co.
(Effective Aug 11, 1939)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski crudes $0.96
Van crude $0.92
Conroe $1.27

(Effective Oct. 2, 1939)

Flour Bluff and Jim Wells County $1.23

(Effective Sept. 14, 1939)

Hardin, Liberty county $1.10

Oct. 12, '38, Magnolia posted $0.96 in Darst Creek; $0.87 in Luling; $0.99 in Lytton Springs; $1.14 for Cleveland, and $1.02 in Hardin, both in Liberty county, Tex.

Oct. 12, '38, The Texas Co. posted $0.96 in Darst Creek.

(Continued on next page)

CRUDE OIL MARKETS

(Continued from preceding page)

***Anahuac-Dickinson**
(Effective Oct. 2, 1939)

Below 20°	$0.81	30-30.9	$1.03
20-20.9	.83	31-31.9	1.05
21-21.9	.85	32-32.9	1.07
22-22.9	.87	33-33.9	1.09
23-23.9	.89	34-34.9	1.11
24-24.9	.91	35-35.9	1.13
25-25.9	.93	36-36.9	1.15
26-26.9	.95	37-37.9	1.17
27-27.9	.97	38-38.9	1.19
28-28.9	.99	39-39.9	1.21
29-29.9	1.01	40 & above	1.23

*Anahuac-Dickinson includes Cedar Point, Fairbanks, Gillock, Hull, Pierce Junction and Raccoon Bend (shallow sand) and Turtle Bay.

Raccoon Bend (Deep sand crude) Tomball and Satsuma
(Effective Aug. 11, 1939)

22-22.9	$0.95	32-32.9	$1.15
23-23.9	.97	33-33.9	1.17
24-24.9	.99	34-34.9	1.19
25-25.9	1.01	35-35.9	1.21
26-26.9	1.03	36-36.9	1.23
27-27.9	1.05	37-37.9	1.25
28-28.9	1.07	38-38.9	1.27
29-29.9	1.09	39-39.9	1.29
30-30.9	1.11	40 & above	1.31
31-31.9	1.13		

Dec. 3, 1938, Magnolia posted above price and gravity schedule in Tomball. Effective Aug. 29, 1939, Stanolind met Humble in Tomball, except that Stanolind's schedule begins with below 29 at $1.07.

LOUISIANA-ARKANSAS
Posted by Standard Oil Co. of Louisiana
(†) (For effective dates, see footnote)

Gravity	*N. La.-Ark. Sweet	Bunkie-Eola, La.	*South La. Sour	*Ark. Sour	Baton Rouge-University
Below 20°					$0.79
20-20.9	$0.73	$0.83	‡$0.74	$0.63	.82
21-21.9	for	for	.77	for	.85
22-22.9	oil	oil	.80	oil	.88
23-23.9	Below	Below	.83	Below	.91
24-24.9	25°	25°	.86	25°	.94
25-25.9	.75	.85	.89	.65	.97
26-26.9	.77	.87	.92	.67	1.00
27-27.9	.79	.89	.94	.69	1.02
28-28.9	.81	.91	.96	.71	1.04
29-29.9	.83	.93	.98	.73	1.06
30-30.9	.85	.95	1.00	.75	1.08
31-31.9	.87	.97	1.02	.77	1.10
32-32.9	.89	.99	1.04	.79	1.12
33-33.9	.91	1.01	1.06	.81	1.14
34-34.9	.93	1.03	1.08	.83	1.16
35-35.9	.95	1.05	1.10	.85	1.18
36-36.9	.97	1.07	1.12	.87	1.20
37-37.9	.99	1.09	1.14	.89	1.22
38-38.9	1.01	1.11	1.16	.91	1.24
39-39.9	1.03	1.13	1.18	.93	1.26
40 & above	1.05	1.15	1.20	.95	1.28

(Effective Aug. 30, 1939)

Smackover, Ark.	$0.73
Cotton Valley Distillate	$1.20

*N. La.-Ark. Sweet includes Caddo, Cotton Valley, Cross Lake, De Soto, Haynesville, Homer, Rodessa, Sabine and Sligo, La. crudes, and Miller county, Ark. S. La. Sour includes Choctaw, Darrow, N. Crowley, Roanoke and St. Martinsville. S. Ark. Sour includes Buchner, Magnolia and Village pools.

†N. La.-Ark. Sweet crude and S. La. Sour effective Aug. 30, 1939, except Cross Lake, La., Sept. 7, Baton Rouge-Univ., Sept. 11, and Bunkie and Eola, Oct. 23, 1939; and Ark. Sour, Sept. 13, 1939.

‡For Below 21°.

Effective Sept. 8, 1939, Gulf Refg. Co. met S. O. La's. N. La.-Ark. Sweet prices in Bull Bayou, Caddo, Crichton, De Soto, Haynesville, Homer, and El Dorado.

Posted by Arkansas Fuel Oil Corp.
(Effective Jan. 28, 1937)

Urania, La.	$1.02

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Tepetate and Ville Platte, La.	$1.03

(Effective Jan. 1, 1939)
Abbeville, La.

Below 36	$0.92	38-38.9	$0.98
36-36.9	.94	39-39.9	1.00
37-37.9	.96	40 & above	1.02

Posted by Caddo Crude Oil Purchasing Corp.
(Effective Aug. 14, 1939)

Allison area, Shreveport field	$0.95

Lisbon, N. La.
(Effective Sept. 14, 1939)

27-27.9	$0.66	32-32.9	$0.76
28-28.9	.68	33-33.9	.78
29-29.9	.70	34-34.9	.80
30-30.9	.72	35 & above	.82
31-31.9	.74		

Lisbon prices met by Gulf, Sept. 14.

Note: S. O. Louisiana prices in all La.-Ark. fields, effective Oct. 5, 1938, are on 100% tank table basis.

GULF COASTAL FIELDS
(a) (For effective dates, see footnote)

Gravity	Continental Humble Sinclair Stanolind	Refugio Crude (Humble, Continental)	Texas Co.	Shell
Below 20	$0.86	$0.91	$0.86	(b) $0.79
20-20.9	.88	.93	.88	.81
21-21.9	.90	.95	.90	.83
22-22.9	.92	.97	.92	.86
23-23.9	.94	.99	.94	.89
24-24.9	.96	1.01	.96	.92
25-25.9	.98	1.03	.98	.95
26-26.9	1.00	1.05	1.00	.98
27-27.9	1.02	1.07	1.02	1.00
28-28.9	1.04	1.09	1.04	1.02
29-29.9	1.06	1.11	1.06	1.04
30-30.9	1.08	1.13	1.08	1.06
31-31.9	1.10	1.15	1.10	1.08
32-32.9	1.12	1.17	1.12	1.10
33-33.9	1.14	1.19	1.14	1.12
34-34.9	1.16	1.21	1.16	1.14

(Continued in next column)

Gravity	Humble	Refugio Crude (Humble, Continental)	Texas Co.	Shell
35-35.9	1.18	1.23	for	for
36-36.9	1.20	1.25	oil	oil
37-37.9	1.22	1.27	34° &	34° &
38-38.9	1.24	1.29	above.	above.
39-39.9	1.26	1.31		
40 & above.	1.28	1.33		

(a) Effective Oct. 2, 1939 by Continental, Humble and Texas Co.; Oct. 3, 1939 by Sinclair and Stanolind; Aug. 29, 1939 by Shell. Stanolind's lowest grade is below 21, at $0.88. Refugio, effective Oct. 2, '39 by Humble.

(b) Shell posts these prices in Iowa district, Black Bayou and White Castle, La.; prices in Iowa district have 2 lower grades: below 18, at $0.75, 18-18.9, $0.77; and 19-19.9, is $0.79.

Note: Humble's Gulf Coast prices apply in these Texas fields: Amelia, Clear Lake, Goose Creek, Mirando which includes Duval, Jim Hogg, Webb and Zapata counties and Heyser and Placedo fields; Mykawa, Sugarland, Thompsons and Webster.

Humble's prices in Refugio include crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor fields.

Stanolind's prices apply in Clinton, Hastings, High Island, South Houston and Spindletop. Magnolia posts Mirando, effective Oct. 2, same prices as Humble. Texas Co.'s prices are in Texas and La., Gulf Coast; its prices on Refugio are same as Humble's up to 28 gravity; 28 & above, $1.09; on Duval-Mirando, same as Humble's up to 28; 28 & above, $1.04; it posts Golden Meadow, La., 24-30 grav., $0.90, plus 2c differential, to 40 & above, $1.10.

Posted by Shell Oil Co., Inc.
(Effective Aug. 29, 1939)

Gibson field, Terreborne Parish, La.	$1.04

ROCKY MOUNTAIN FIELDS
Posted by Stanolind Oil & Gas Co.
(Effective Oct. 11, 1938)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma-Kansas, ranging from $0.86 to $1.10, which see under Mid-Continent crude on previous page.

Tensleep, Salt Creek field	$0.646
Ites, heavy	0.92
Elk Basin, light	0.90
Grass Creek, light	0.90
Frannie light	0.55
Grass Creek, heavy	0.40
Hamilton Dome, Wyo.	0.35
Frannie heavy	0.42

Posted by Ohio Oil Co.
(Effective Oct. 11, 1938)

Elk Basin, Wyo.	$0.90
Grass Creek, light	0.90
Rock Creek	1.00
Lance Creek	0.77
Dry Creek, Mont.	0.92

(Effective May 1, 1938)

Grass Creek, heavy	$0.50

(Effective Nov. 16, 1937)

Sunburst, Mont.	$0.90

Posted by Continental Oil Co.
(Effective Oct. 11, 1938)

Cat Creek, Mont.	$1.10
Big Muddy, Wyo.	0.98
Lance Creek, Wyo.	0.77

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937; Greeley-Canal, July 9, 1938; Montebello, Aug. 11, 1939.

Gravity	Signal Hill (Long Beach) El Segundo †Wilmington	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills, Midway-Sunset Lakeview Area	Greeley-Canal (Kern County)	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. 1 '39)
13-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
14-14.9	$0.80	$0.79	$0.74	$0.78	$0.79	$0.80	$0.76	....	....	$0.80	$0.76	$0.76	$0.77	$0.78	....	$0.70	....	$0.70	$0.70	....	$0.70	$0.70	....	$0.42
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....	.44
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....	.45
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....	.46
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	....	.70	.70	....	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	....	.74	.71	.70	....
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	....	.78	.72	.70	....
21-21.9	.88	.79	.74	.89	.93	.93	.84	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	....	.82	.74	.70	....
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	....	.86	.78	.72	....
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	....	.90	.82	.76	....
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	....	.94	.86	.79	....
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	....	.98	.90	.83	....
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.93	1.03	.90	....	.91	1.06	1.06	....	1.02	....	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.97	1.06	.95	....	.95	1.10	1.10	$0.91	1.06	....	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	1.01	1.10	.99	....	.99	1.15	1.15	.94	1.10	....	....	....
29-29.9	1.17	1.15	.93	1.18	1.18	....	1.17	1.12	.93	....	1.09	....	1.06	1.14	1.03	....	1.02	1.20	1.20	.93	1.14	....	....	....
30-30.9	1.21	1.19	.95	1.22	1.21	....	1.21	1.17	.95	....	....	....	1.10	1.17	1.08	....	1.06	1.25	1.25	1.02	1.18	....	....	....
31-31.9					1.24	....	1.24	1.22	.97	....	....	....	1.14	1.21	1.12	....	1.09	1.29	1.29	1.06				
32-32.9	*Elwood Terrace			....	1.27	....	1.27	1.27	1.00	....	....	....	1.18	1.25	1.16	....	1.13	1.34	1.34	1.09	Kettleman Hills			
33-33.9	....	1.28	....	....	....	....	....	1.32	....	....	....	....	1.22	1.28	1.20	....	1.17	1.38	1.38	1.13	....	1.19	....	....
34-34.9	....	1.32	....	....	....	....	....	1.37	....	....	....	....	1.26	1.32	1.25	....	1.20	....	....	1.17	....	1.23	....	....
35-35.9	....	1.35	....	....	....	....	....	1.42	....	....	....	....	1.30	....	1.29	....	....	....	....	1.20	....	1.27	....	....
36-36.9	....	1.39	....	....	....	....	....	1.46	....	....	....	....	1.34	....	1.33	....	....	....	....	1.24	....	1.31	....	....
37-37.9	....	1.43	....	....	....	....	....	1.51	....	....	....	....	1.38	....	1.37	....	....	....	....	1.28	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	1.42	....	1.42	....	....	....	....	1.31	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	1.47	....	....	....	....	....	....	1.35	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	1.51	....	....	....	....	....	....	1.39	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	....	....	1.55	....	....	....	....	....	....	1.43	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	....	....	1.59	....	....	....	....	....	....	1.46	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	....	....	1.63	....	....	....	....	....	....	1.50	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	....	....	1.67	....	....	....	....	....	....	1.54	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	....	....	1.71	....	....	....	....	....	....	1.57	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	....	....	....	1.75	....	....	....	....	....	....	1.61	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.65	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1.68	....	....	....	....

F.O.B. Standard Pipe Line

*F. o. b. ship.
‡Also McKittrick, Kern River. Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted.
†Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill

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FUEL OIL

(*Continued from page* 44)

tank car marketers said they had been receiving numerous inquiries from jobbers but that actual takings still were limited. Stocks held by jobbers were ample to take care of current consumer demand, it was said.

Active demand for industrial fuels has resulted in limited offerings of these oils both from the Mid-Continent and nearby sources, resellers in Chicago said. One refiner reported advancing his quotation for No. 6 oil 5 cents to $0.45 per barrel. Other quotations reported for this grade also were at $0.45.

* * *

NEW YORK, Oct. 28.—Prices for kerosine and light fuel oils generally were unchanged at all points along the Atlantic Seaboard, according to reports of suppliers the past week. Movement against contracts was steady, suppliers said. "Quiet with prices firm" was the manner in which most suppliers described the open market for these products.

Mid-Western

CHICAGO, Oct. 28.—With unseasonably high temperatures prevailing throughout the Middle West, jobber demand for gasoline held up well the past week, according to reports of Chicago tank car marketers. Bulk of the movement was against contracts, it was said. Open spot gasoline sales reported by tank car marketers totaled 14 cars.

Reports of price shading on 70-72 octane leaded gasoline were encountered occasionally. Quotations reported for this grade ranged from 4.75 to 5.375 cents. Offerings of low octane from the Mid-Continent continued limited while this material was offered freely by local sources, resellers said. Quotations reported for 62 octane and below ranged from 4.25 to 4.75 cents.

Jobber demand for kerosine increased slightly, according to reports. One refiner reported advancing his quotations 0.125 cent to 3.875 cents, Group 3, for 41-43 w.w., and 4 cents, Group 3, for 42-44 w.w. Other quotations ranged from 3.50 to 4 cents and from 3.625 to 4.25 cents for the two grades, respectively, according to reports.

Opens New York Office

NEW YORK — The Distributing and Trading Co., Inc., has opened offices at 21 West St., and will deal in imported and domestic natural waxes, petrolatums and petroleum by-products. Gustavo Luzzatto, president, is an officer of Luzzato & Figlio, Ltd., established in 1867 and maintaining offices in Paris, Milan, London, Barcelona, Zurich and Antwerp. Frank W. Clarke has been appointed manager of the domestic division.

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Petroleum and Gas Engineer
Design Construction Reports

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"STRICTLY PERSONAL"

John H. Donahue, Pittsburgh, chairman of Associated Retail Gasoline Dealers Ass'n of Allegheny County, was elected president of the Pennsylvania Petroleum Dealers Ass'n at a meeting Oct. 25 in Harrisburg, Pa.

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Dan Field, Mid-Continent Petroleum Corp. dealer has been elected president of the Denver Ass'n of Petroleum Retailers, succeeding **Sid Johnson,** Texaco dealer, resigned. Mr. Johnson will remain on the association board of directors.

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Harry Jenkins, Des Moines representative of Bell Oil & Gas Co., returned to his office a few days ago from a hunting trip in Canada, bringing back a fine moose, a bear and a deer.

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Miles R. Wiseman, Allied Oil Co., Cleveland, has joined the "gentleman-farmer" class, having bought a home near Solon, Ohio. Mr. Wiseman says he has plenty of time to read the morning paper on his way to work now.

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O. D. Robinson, Republic Oil Co., Pittsburgh, spent several days in New York on business the past week. **J. M. Gardiner** of the same company is in Florida on vacation.

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R. C. Alden, Bartlesville, Okla., in charge of the research department for Phillips Petroleum Co., has recovered sufficiently from a recent emergency appendectomy to be back at his office.

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George C. Herman, Milwaukee, of McClain Oil Co., spent some time in Chicago this week visiting in oil circles.

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Stark Fox, member of the Oil Producers Agency of California, is vacationing in Utah with Mrs. Fox. He will return around the first of November.

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The gas testing and measurement committee of the Natural Gasoline Assn. of America held a series of field tests last week near Pawhuska, Okla. Those in the testing party were **A. Lucas,** Skelly Oil Co.; **Jack Swab,** and **Frank Wayman,** Shell Oil Co., Inc.; **Russell Clark** and **Gwynn Felton,** Phillips Petroleum Co.; **Clares Quast** and **Raymond Ess,** Sinclair-Prairie Oil Co.; **S. M. McAnnelly,** Lone Star Gasoline Co.; **H. L. Oder,** Cities Service Oil Co.; **C. A. Mathey,** Mathey Machine Works; and **W. F. Lowe,** secretary of the N. G. A. A.

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N. S. Moon, division manager at Chicago for Phillips Petroleum Co., returned late last week from a two week vacation in Texas.

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A. H. (Tony) Eisler, Chicago, of Transamerican Petroleum Corp., returned this week from an extended business trip to southern Illinois refinery district.

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C. F. (Charlie) Felton of Franklin Creek Refining Co., Franklin, Penna., was in Cleveland the past week calling on the jobbing trade.

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Herbert A. Meek, president of the Henry H. Cross Co. of California and of the El Camino Oil Co., sent a fish story to Los Angeles this week from Acapula, Mexico, where he is vacationing with Sidney Searl of the Searl-Merrick Co. In a letter to his secretary, **Ann McLaughlin,** Mr. Meek tells of a 10-foot, 130-pound sailfish caught 15 miles off the Mexican coast. "It took me 45 minutes to land the old boy," reports Fisherman Meek. The petroleum executive expects to doff his oil-skins and be back at his desk within the next two weeks.

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J. B. Arthur, manager of Union Oil Company's export sales in Los Angeles, was back at his desk this week after a brief illness.

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Phil Polsky, Northwest distributor of petroleum products, is now affiliated with **W. C. Van Fleet** and **W. P. Durkee,** also West Coast distributors. The three men are now organizing a large independent oil distributing firm in Washington.

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Twelve changes in the marketing personnel of Shell Oil Co., Inc. have been announced by **P. E. Lakin,** vice-president in charge of marketing. **R. T. Seidel,** retail merchandising manager, was appointed sales manager of the Northern (Illinois) Division. **G. E. Keister,** northern division sales manager was transferred to Michigan Division as sales manager. **R. B. Ruyle,** Michigan sales manager went to the north central division as sales manager.

H. A. Thomas, manager of specialties section of the technical products department, was named retail merchandising manager in the head office. **R. L. Williams,** salesman in the same department, was promoted to manager of the specialties section. **J. H. Wagner,** assistant to the general sales manager, was appointed assistant office manager of the marketing department.

E. R. Renfro, Sales Manager, southern division, was transferred to St. Louis as assistant to the general sales manager, and **R. C. Robinson,** formerly assistant sales manager, southern division, succeeds Mr. Renfro. Also, in the southern division, **R. J. Redd,** assistant sales manager moves to Houston as assistant in the Texas area, and **R. L. Whitten,** who had been serving in that capacity, moves from Houston to New Orleans as assistant sales manager.

In the Northern Division, **H. E. McNeal,** district manager, moves to the Central Division as Retail Merchandising Manager of St. Louis area, while **A. S. Pentland,** assistant division manager, North Central Division, moves to the northern division as district manager.

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Jack LaFortune, Tulsa, of the Warren Petroleum Co., and Miss Eunice Duckett of South Bend, Ind., were married at the latter city, Oct. 28. Mr. LaFortune's home was in South Bend before he joined the Warren Company here, of which his uncle, **J. A. LaFortune,** is vice president.

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Miss Elaine Eppler, daughter of **George Eppler,** Dixie Distributor of Utica, Mich., counts herself as one lucky American who got back from Europe recently without benefit of bombs, submarines or torpedoes.

A young high school English teacher, she had gone to Germany to study at the University of Heidelberg. When war was declared, she was one of waiting thousands to get on a German liner, but the ship cruised around in the North Sea instead of crossing the Atlantic, and eventually wound up back at Hamburg. Then she got passage on a boat to Rotterdam, and finally "pushed and shoved" her way, she says, to the Black Falcon, an American freighter which had space for only six but made room for five more of the 90 applicants. For 14 days, they rolled and tossed in bad Atlantic weather but aside from that, the trip was what is described in these tumultuous days as uneventful.

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NEW MODELS BRING NEW LUBRICATION PROBLEMS

Announcement of the 1940 cars means to the oil companies, from their service men to their chief executives, new lubrication problems to be met, says W. H. Correa of New York, of the lubricating department, Socony-Vacuum Oil Co., chairman of the Lubricating Oil Committee of the American Petroleum Institute, in a special message to NATIONAL PETROLEUM NEWS, for its New Car Lubrication Number.

Mr. Correa and the lubrication experts from the oil companies on his committee have studied for some years the effect of neglect by motorists in changing their motor oil and in lubricating their cars on the operation and life of the cars.

W. H. Correa, Lubricating Department, Socony Vacuum Oil Co., New York City

By W. H. CORREA

Chairman API Lubricating Oil Committee

About this time each year all of us, whether or not we are connected with the petroleum industry, eagerly anticipate the announcement of the new cars. Regardless of any advance information we may have had, there is a strong desire to see what they actually look like. We, too, like to "window shop."

Beyond that, however, is the certain knowledge, based on past experience, that with the new models will come new problems for the oil companies. From the beginning it has been so; the motor and petroleum industries developed together, the former opening new markets for fuels and lubricants, the latter providing the improved products which have made possible advancements in design and performance.

An example of this is the 1940 Oldsmobile with the Hydra-Matic transmission. The manufacturer insists that a special oil be used, that it be drained at regular intervals. He will not guarantee the unit unless these instructions are followed. Is this not evidence of a new development, of a new lubrication problem, of the fact that before some new design can be used generally, the oil industry must produce and distribute the required type of lubricant? Only a few years ago, it was the passenger car hypoid. Today, the fluid flywheel, the automatic transmission, the truck hypoid, the matter of "lacquer" or "varnish," all problems passed on to the oil industry by the motor manufacturers.

One is inclined to feel at times that the average car owner is not told often enough that all this is true, that the products he buys so conveniently are not just gasoline and oil but truly the concentrated result of years of research and experience, without which he could not even have his present day car, let alone obtain its full performance value.

We believe he should be reminded frequently that the modern motor car is tough on lubricants and the oil's job is to lubricate properly, rather than to last forever. He should be made to realize that service does result in oil contamination, seen and unseen, and that if the process is allowed to go too far, it causes costly trouble in modern engines, or for that matter, transmissions or rear axles. Certainly we are told this by the motor manufacturers and have seen plenty of evidence of such troubles during the past few years.

For his own protection, why should we not show the car owner the economies of proper lubrication, of regular crankcase draining, the savings in repair bills and the assurance of satisfactory operation which go with it!

True it is that some more oil will be sold but for the car owner, the money he spends is insurance against troubles and repairs, assurance of satisfactory performance.